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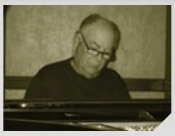

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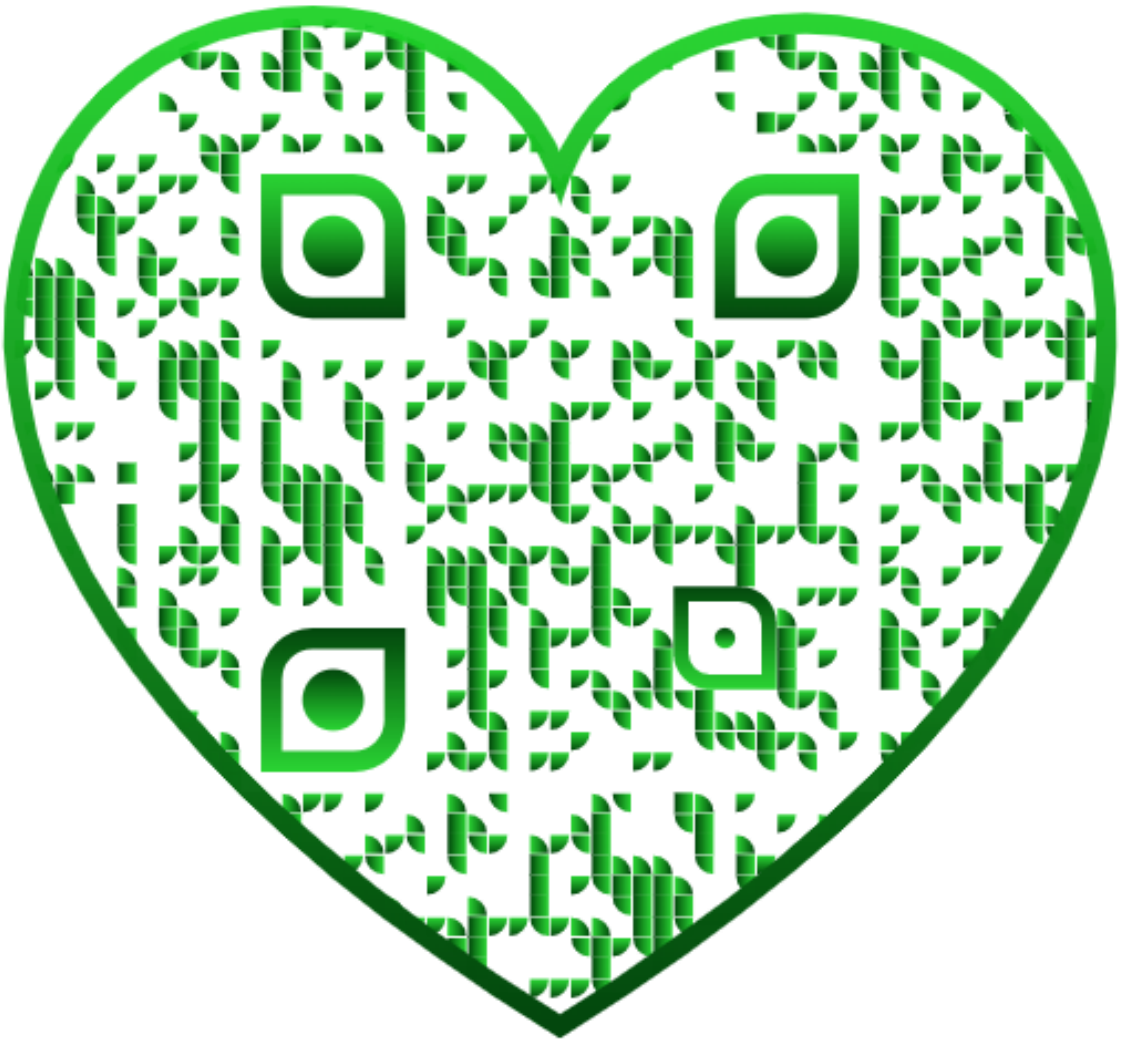

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CONTENTS

JULY 2015

Keyboard
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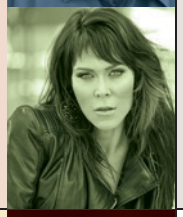
TALK

8 Voices, tips, and breaking news from the *Keyboard* community.

NEW GEAR

10 Four exciting new keyboard synths and one software instrument round out our monthly wrap-up of the most interesting products from the music technology industry.

HEAR

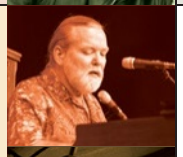


12 **COVER STORY**
Martin Gore, a founding member and principal songwriter of Depeche Mode, has released his first album in a dozen years: the all-instrumental *MG*, which lives somewhere between EDM and a cinematic score. He shares insights about his recording process and his favorite musical tools.

16 **GURUS**
Having performed alongside some of the biggest jazz artists, University of Miami professor **Vince Maggio** has in turn launched the careers of many talented students, including **Bruce Hornsby** and *Keyboard*'s own **Jon Regen**.

18 **BUZZWORTHY**
Pianist and songwriter **Beth Hart** on why some of her most essential musical moments happen between just her and a piano.

PLAY



20 **ROCK**
John Ginty teaches five ways to solo like the great but understated **Gregg Allman**.

24 **SOUL/BLUES**
Learn to play Hammond organ like **Jimmy McGriff**.

26 **JAZZ**
George Whitty shows the importance of what notes you place *on* the beat during bop-inspired solos.

KNOW

32 **THE ART OF SYNTH SOLOING**
An appreciation of the artistry of Dregs keyboardist **T Lavitz**.

34 **BEYOND THE MANUAL**
Take an **arpeggiator adventure**.

36 **SOUND DESIGN**
Bigger, better pads for pop music and scores.

REVIEW

38 **ANALOG SYNTH**
Hypersynth **Xenophone**

42 **VIRTUAL PIANO**
Modartt **Pianoteq 5**

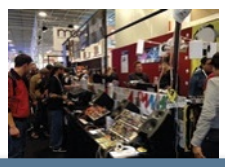
44 **FILTER PLUG-IN**
Cytomic **The Drop**

46 **EFFECTS PROCESSOR**
Eventide **H9 Max**

48 **APP**
Mominstruments **Elastic Drums**

CODA

50 **David Cook** shares five things he has learned about succeeding as a **music director** for such mega-stars as **Taylor Swift**.



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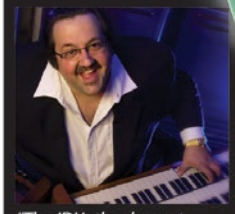

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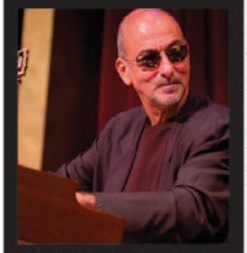

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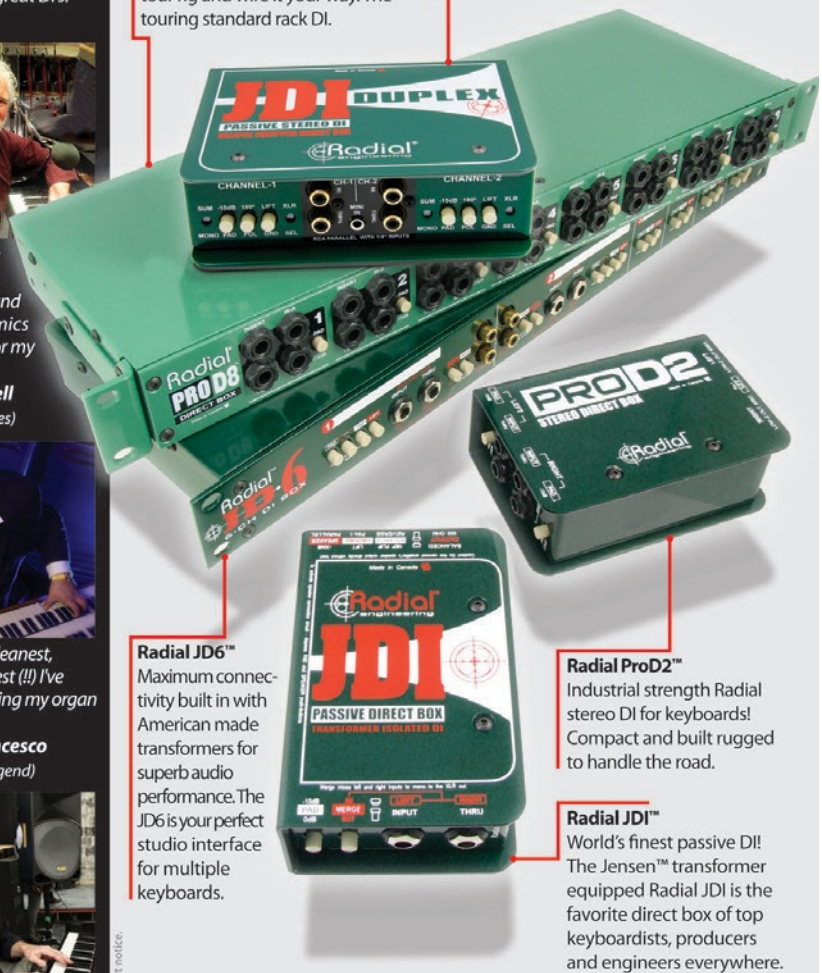

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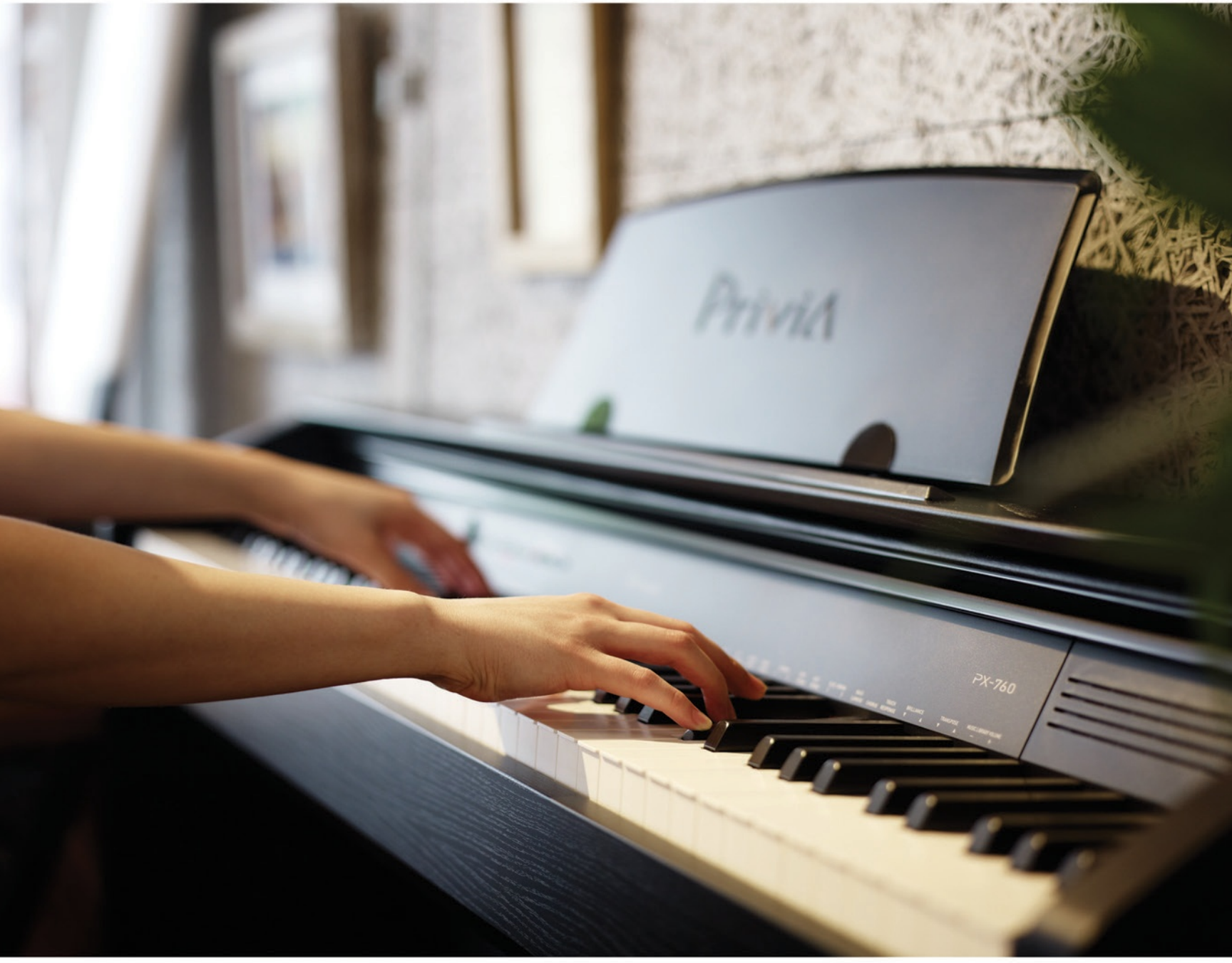

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CASIO

Editor's Note

Our upcoming September 2015 issue will mark 40 years of *Keyboard*, and we plan to celebrate throughout the 12 issues that will begin just two short months from now. We have an embarrassment of riches of ideas for print and online, but we find that the best ones tend to come from our readers. So we'd love to hear from you via email or social media, especially if you've been a longtime reader, about what you'd like to see in a 40th-anniversary issue and thereafter.

In other news, I'd like to thank Robbie Gennet for his "The Key of One" miniseries, which ran from January through May of this year and was based on his book of the same name. I was initially skeptical about a no-sheet-music learning approach, but the response has been overwhelmingly positive. You can learn more about his method and book at theykeyofone.com. One more update: Francis Prève's "Dance" column has been a *Keyboard* MVP for years now, and to emphasize that it teaches synth skills that go far beyond electronic dance floor styles of music, it's reborn as "Sound Design," beginning in this issue. See you next month!

Stephen Fortner
Editor

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+ 30 YEARS AGO TODAY

Kate Bush was **Keyboard**'s cover artist in July 1985, just as her smash album *Hounds of Love* was about to drop. Bush talked about the impact of keyboard technology such as the Fairlight CMI on her work. Producer/arranger/musician **Dave Grusin** revealed some of his synth techniques and how he prepared for Diane Schuur's tour. Our Keyboard Report section featured reviews of the **Oberheim Matrix-12** and **Roland MSQ-100 MIDI** sequencer. Among our advertisers was New England Digital with their **Synclavier**, at that time the pinnacle of high-end digital music workstations. Barbara Schultz

Music Industry Day at Summer NAMM 2015

Usually you need some kind of industry credentials to attend the NAMM Show, but this year, Summer NAMM and *Keyboard* swing open the doors for all musicians on Saturday, July 11 at Nashville's Music City Center. You can get your hands on the gear; hear live performances by Rosanne Cash, Charley Pride, the Oak Ridge Boys, and more artists; and schmooze to your heart's content. Tickets are just $10 in advance or $20 at the door. Find out more at namm.org/musicindustryday.

PHOTO: NAMM

Vince Gill and the Players perform at last year's show.

Key Secrets The Poor Man's Wavedrum

One of the brilliant features of the Korg Wavedrum is its built-in mic, which adds an organic quality to the synth engine's sounds. Scraping your fingernails across the drum head or striking it with a different part of your hand creates a richness you don't get when triggering sounds from a keyboard. Surprisingly, I got similar results with a toy drum and BeepStreet Impaktor, a $4.99 iOS app. Impaktor uses the iPhone or iPad mic to stimulate its physical modeling percussion synth, but discards subtle parts of the original audio. So I miked the drum with a Zoom H4n handheld recorder and simultaneously recorded the iPad's output to the Zoom's line input. Check out audio examples of the results at keyboardmag.com/july2015. David Battino

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BY GINO ROBAIR

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$5,495 street | modalelectronics.com

WMD/SSF MONOLITH

WHAT Eurorack system with built-in 37-note keyboard. Includes 15 modules (with space for more), four-pole lowpass filter, MIDI in/out/thru, velocity and aftertouch, stereo output, sustain pedal input, headphone jack, and power supply and cables. **WHY** This ready-to-play modular synth is both relatively affordable and easily expandable.

$2,599.99 | wmdevices.com

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Martin Gore

ON THE ELECTRONIC ROCK HERO'S SOLO ALBUM, IT'S ALL ABOUT SYNTHS

BY FRANCIS PRÈVE

"I DIDN'T WANT TO DO A TECHNO ALBUM BECAUSE I KIND OF DID THAT WITH Vince Clarke on the *VCMG* project," Martin Gore says, explaining his new synth-soaked solo outing, *MG*. "I thought this would be for the sake of doing something different, just to try and create something a bit more filmic, a bit more atmospheric, really, and get a whole album's worth of that sort of material."

For a recording with the cinematic scope of *MG*, Gore's intuition is spot-on. His first full-length album since 2003's *Counterfeit 2* straddles the line between modern electronic dance music and lush soundscapes that could be a lost collection of cues from *Blade Runner*, deftly blending his brilliant and deep sense of sound design with an understated musicality that references the more somber and foreboding moments of his work as principal songwriter in the legendary electronic rock band Depeche Mode. The result is an album that's equally suited to both casual listening and focused artistic inspection. Gore generously shared his insights into the recording process of *MG*, the current state of the music industry, and his favorite synths and modular gear.

Elka Synthex. The Elka Synthex is one of my favorite keyboards of all time—even with its digitally controlled oscillators. It has a great multi-mode filter. It is the kind of synth that's impossible to make bad sounds with. All of the main melody sounds on "Elk" were played on it.

Minimoog Voyager. "Europa Hymn" was started with two interweaving sounds created on the Voyager played through a tape echo.

Gleeman Pentaphonic. The clear-case Gleeman Pentaphonic is one of the coolest looking synths. I also like the mechanical feel of the preset changer. It has a sound unlike any other synth. It can be very glassy sounding, for want of a better word. I used it for the two-note melody in what I call the chorus of "Europa Hymn."

Elektron Analog Four and Rytm. The Analog Four and Rytm were the starting point for "Creeper." The Analog Four playing the repetitive and menacing bass line and the Rytm playing the high-end percussion.

ARP 2600 and Solina. The ARP 2600 was the first legendary synth that I saw in the flesh. When Depeche Mode went into the studio for the first time with Daniel Miller, he brought along his beloved machine. He was a master with it. He taught us so much about the potential of synthesizers. He also had an ARP sequencer which became a staple on our early records. I used the 2600 for one of the many

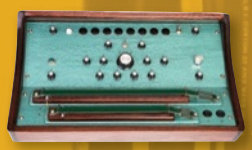
>> MARTIN GEAR!

Martin Gore talks about the principal synths on *MG*, and how they contributed to specific tracks.

groovy bass throbs on "Featherlight." I used the ARP Solina for two of the parts on "Stealth." One is more of a standard string sound. The other was put through a Doepfer Bit Modifier and ended up sounding more like a yodeling choir.

Aries/Digisound Modular. I have a hybrid Aries/Digisound modular. The main riff on "Creeper"—if you can call it that, as it's fairly atonal—was created with this system. The Digisound oscillators are digital and the main component of the sound was created by scanning through their wave shapes.

Synton Fenix. The Synton Fenix is another of my favorites. In fact, I like everything I've ever tried or seen that was made by Synton. The main machine-like throb of "Hum" and the filtered background sound that plays most of the way through it were all the Fenix.



Dewanatron Swarmatron. The Swarmatron was responsible for the banshee screaming sound that comes in when "Spiral" kicks in after the small drop-down. I find the Swarmatron quite hard to control but inspiring because of that.

Octave Plateau Voyetra 8. The Voyetra 8 is another classic, another synth that always sounds good. I used it for the lush minor seventh chords on "Exalt." They sound so beautiful amid the rest of the controlled chaos that's going on.

Arturia MiniBrute. The MiniBrute had two duties on "Southerly." Firstly, I made a hi-hat sound and played it with the arpeggiator, switching the timing to get it to play frenetic fills. Second, I used it for the punchy, mid-range sequencer line.

TRAVIS SHINN

With a record as technically intricate yet emotionally engaging, what was your production process for *MG*?

Well, I've always written instrumentals over the years and there have been quite a few that have come out as part of Depeche Mode albums or as extra tracks on singles. We actually put out a boxed set of just instrumentals that we've released. But when I was writing "Delta Machine" I actually had about four tracks or so that we decided not to use, so I thought, rather than let them go to waste, maybe I should think about doing an instrumental album and it would be something very different. So I built on that foundation that I had with those four tracks and started working on it pretty much straightaway when I got back from the "Delta Machine" tour. I just had this idea not to let anything linger for too long. I didn't want any, like, nine-minute tracks. I wanted to keep it all kind of simple and short. Simple and short tracks evoke really special atmospheres. There was something that was a little bit sci-fi in the atmosphere that was being created on a lot of the tracks, so that gave me a bit of a template.

What DAW did you use?

I still work in [Apple] Logic Pro. Nearly all the sounds are created with hardware synths, however.

What synths did you use for the production?

A lot of it was created with modular synthesizers. I have a very big Eurorack system. There's so much stuff now coming out in the Eurorack field, it's unbelievable. It's flourishing, it just doesn't stop, and I find it so inspiring.

With all that modular gear, are there any modules you find yourself relying on regularly?

It depends obviously on what I'm doing but I like a lot of the Noise Engineering stuff and the Hex Inverter stuff and MakeNoise, of course, as companies. But I love the new Circadian Rhythms by TipTop Audio – that's a great drum computer. During the recording I was using things like the Trigger Riot and the Noise Engineering drum module where you make your own sounds. And, then there's another where you've got the "mother" rhythm and the three "child" rhythms. [*Gore is referring to Noise Engineering's Zularic Repetitor. —Ed.*]

Was your rig exclusively modular or did you use any more conventional hardware synths?

I did use some more conventional stuff. I mean, I love my Elka Synthex. I use that on quite a few tracks. I use a Moog Voyager on one track, I think. Then I've also got a Synthesizers Dot Com modular system which I used quite a bit.

In terms of developing the sound of the record, how long did the process take, going from the original four fragments to building an entire album?

Well, the four fragments were more like four tracks that had been written, so they were about 80 or 90 percent there. We got back from the tour in March of last year, and I think I'd finished all of the recording by the end of November. It was pretty quick especially since I wasn't doing really long days. Most days I would start around 12 o'clock and be finished by 6 or 7.

Several of the tracks, including "Pinking," "Swanning," and "Stealth," have synth passages that evoke early Depeche Mode.What were your thoughts about going back to a more traditional analog tonal palette?

I don't think it was anything that was conscious. It was probably just the fact that I was using a lot of analog stuff and maybe it's just the way that I write—and inevitably, that's going to evoke something from the past.

Quite a few tracks don't include drums but still have a very strong rhythmic component. What are your thoughts on how those could be reinterpreted—or are you even thinking in terms of remixes?

Yeah, I am getting some remixes done of "Europa Hymn" and I already have one in at the moment and we're waiting on about three more coming in. And then I have one remix of "Brink" that has already come in. And I think there's another one we're still waiting for.

Are you able to talk about who's doing the remixes?

I can tell you the ones that are in already. I think that's fine because the problem with remixes is that one always has to have veto power, so until I've actually heard them and actually like them, then it's a bit of a grey area. But so far, I have Christopher Berg, who worked with us on "Delta Machine," and he did a remix for *VCMG* as well. He's done a remix of "Pinking." And Virgil Enzinger did two remixes of "Brink." All of those remixes so far are really good.

Will those be a separate package from the record, included as a bonus package, or will they be singles?

I think "single" is a bit of a weird term when you're talking about an instrumental album or an instrumental track. But I think it may be like a lead track… there'll be some remixes coming out as a download or on a single or… I imagine we'll be doing it on vinyl as well these days. Vinyl is back! That's the reason the album is coming out so late. The pressing plants were backed up because of Record Store Day. We have to push back the release of the record to wait for the vinyl. I never thought I'd be saying that in 2015.

Depeche Mode has certainly had a massive impact on the current electronic music landscape. But what modern artists, if any, are influencing you these days?

I listen to a lot of electronic music. I like things like Alva Noto and I love the Diamond Version albums. I think they're very innovative and have a unique sound that no one else has.

Is that what draws you to new artists?

Whether it's electronic or a band, I think that, yes, the draw is its uniqueness. You have to have your own special quality because a lot of stuff can sound very generic such that it's very difficult to tell one artist from another. I don't think you can ever mistake an Alva Noto track or a Diamond Version track for something else.

With a career that spans over three decades and has influenced thousands of musicians, what are the biggest lessons that you've learned that you'd like to share with our readers?

The landscape has changed so much. Even when I talk to members of my own family or people that are starting out now, I feel like Depeche Mode had such a head start due to the fact that the music industry was so much stronger when we started. If I were starting out now I wouldn't even know where to begin. It seems to be so difficult to break into because record companies just don't have the money anymore so they're not interested in growing an artist.

What would you say to somebody who's just getting into synths? What would you encourage?

I've always said, develop your own identity so that you put your stamp on something when you write or produce a track. ♫

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VINCE MAGGIO

University of Miami's Jazz Piano Patriarch on a Life in Pursuit of Melodic Mastery

BY JON REGEN

THE YEAR WAS 1987. I WAS A BRIGHT-EYED 17-YEAR-OLD JAZZ PIANIST WITH an anemic record collection and a subscription to *Keyboard*. When I read that one of my musical heroes, Bruce Hornsby, had studied with a teacher named Vince Maggio at the University of Miami School of Music, I proudly announced to my parents that I would do the same. A year later, I found myself in the same hallowed hallways that Hornsby and forbears like Pat Metheny, Jaco Pastorius, and others once wandered.

Vince was never one to beat around the bush. "How did you get in here?" he asked me point blank during my first semester "jury," an academic firing squad of sorts where the jazz piano faculty members would gather to monitor each student's progress. When I replied, "I sent in a tape," Vince responded, "I'm putting you on probation. You need to improve fast." But as intimidating as he could be, he was also fiercely committed to instilling a sense of swing and subtlety in his students' playing, and his reading me the riot act pushed me to new musical heights. While I would eventually transfer to Rutgers University to study under the pianist Kenny Barron for the remainder of my undergraduate studies, I am forever grateful to Vince for sending me on my musical way. Nearly three decades later, it's a thrill to reconnect with my former professor and share him with the rest of the musical world.

How did your musical education begin?

I was born in Chicago in 1937 into a musical family. My father played six instruments, and my mother married her guitar teacher! There was a grand piano in my house from early on, and my first lessons were with local nuns who used the John Thompson piano book method. They would play a piece to me, and I would play it back to them by ear. It wasn't until I was nine years old that they realized I couldn't read music! My Dad was a staff musician on NBC Radio in Chicago and he also had a little band that did weddings and other gigs. I wanted to sit in with him, so he taught me how to learn chord symbols. From there I was able to figure out how to play tunes with just melodies and chord changes.

In my last year of high school, my Dad got tired of the music business after his staff job at NBC ended. He wanted to go into the radio and TV repair business, so he moved our family to Fort Lauderdale, Florida. I became very depressed and thought I would never hear jazz music again.

One day, I went into a local club and there was a band playing; the saxophone player sounded like Charlie Parker, and the piano player was passed out with his nose on middle *C*! I asked if I could sit in. The sax player turned out to be [Julian] Cannonball Adderly, and I ended up playing with him all throughout my senior year in high school. He mentored me for about a year. This was 1955, years before he played on Miles Davis' *Kind of Blue*.

Did you study music formally after you graduated high school?

Yes. After I finished high school in 1956, I went to the American Conservatory in Chicago. I started falling more and more in love with the language and rhythm of jazz. I went on to form different groups under the name Vince Lawrence, which is my middle name. Around 1959, I had a house trio gig in Chicago, and in walked Oscar Peterson. He was starting a jazz school in Toronto, Canada, and invited me to come work with him. So I studied with him and stayed in Toronto for about a year. Oscar taught me the "weight transfer" method of relaxed tone production at the piano, which he learned from Art Tatum.

Later I went to New York, where I apprenticed with Tadd Dameron. He introduced me to people like Miles Davis, Gil Evans, and John Coltrane, and I got to play with amazing musicians like Chet Baker. In 1962, I moved in with the pianist Warren Bernhardt. He already had another roommate living with him, and it was Bill Evans. So I got to know Bill while the three of us lived together.

What do you remember most about Bill Evans?

We had a mutual admiration for each other's work. In later years we would get together when he came down to Florida. I told him how excited I was getting about the curriculum I was developing for improvisation that was a melodic alternative to just playing scales and patterns. I asked him if he had any suggestions for me, and he replied, "I just try to find things that are right under my hand."

How did you get started teaching?

My first student at the University of Miami was a blind pianist named Michael Gerber who I would later find out was also deaf in one ear. Around 1969, [University of Miami Saxophonist and educator] Jerry Coker brought me into a practice room where Michael was. He was having difficulty transcribing a Cannonball Adderly song because he couldn't hear all of the chord changes. I told him, "Just listen to the bass line and you'll hear the changes." He replied, "But I don't hear bass too well." So I asked him, "What if you are playing with a bass player?" And Michael replied, "He has to stand close to me." So I put his head right against the stereo speaker, and from then on he got every chord change correct.

Coker immediately walked me over to the Dean's office and said, "I want you to hire Vince as a teacher." I started teaching at UM in 1970.

What kinds of things did you try to instill in the players who studied under you?

First would be melodic credibility, which is the understanding that at the piano you have the melody, and then you have everything else, which is the accompaniment. The biggest issue I hear with pianists is an absence of musical balance.

They don't approach the piano like an orchestra, and they don't approach the melody like a singer or a horn player like Miles Davis would. With most pianists, the accompaniment is as prominent in the mix as the melody is. So I focused on that imbalance by having them play the melody alone at the piano while I accompanied them. Then we would switch, with me playing the melody and the students accompanying me. I would also get into having students sing the melody, because I knew none of them would make a substantial living if they couldn't accompany a singer. I would accompany them and get in their way, so they would learn what *not* to do. Pretty soon, they would start to understand the concept of orchestration at the piano.

In the process of teaching my piano students about orchestration and musical balance, a host of technical glitches like pedaling would arise that I would need to address—things like sitting at the piano properly so that all of your body parts are lined up, to get your body weight into the keys. Also things like bench position, wrist position, and other issues of front-end alignment. I never approached teaching with technique first. I wanted to fix musical problems, but in order to do so, you often have to address technical problems.

What was it like working with Bruce Hornsby?

Bruce was a transfer student from the Berklee College of Music in Boston. When he arrived, he really didn't play jazz very well at all, but he had a pretty good "clock" and he had a presence about him at the piano. Bruce had a *voice* when he played. I didn't realize when he first arrived that he was also a singer.

At that time, Bruce was curious about the language of bebop and pianists like Bud Powell, but his personal taste was more along the lines of the band Oregon. I felt Bruce had some swing-feel issues, so I was steering him towards people like Oscar [Peterson]. I was actually going to flunk him out of the program at the end of his first semester because his playing did not work for me at all. Then Bruce came to me and said he wanted to write songs, and he started to sing some of his original compositions. I was immediately struck by how gifted he was as a lyricist and songwriter. So we struck a deal: I told him for every Bud Powell transcription he memorized for his lessons, we'd also work on an Oregon tune that he liked. Bruce went to work so hard that one night I received a call at my home around midnight from a security officer at school: "There's a guy sleeping in one of the practice rooms who says he's a student of yours, but he looks like a bum." I asked, "What's his name?" And the person replied, "His name is Bruce Hornsby and he's sitting at the piano, covered up in McDonalds wrappers." So I told him, "Leave him there. He needs to practice!"

In my 40 years of teaching, Bruce did more of a 180-degree turn than any other piano student I have ever had. Soon he was playing in the UM Studio Jazz Orchestra and performing transcriptions from the *Bill Evans Trio with Symphony Orchestra* album. After he left, he went on tour with Sheena Easton, and then he exploded as a solo artist.

You've recently started teaching improvisation to classical musicians.

I taught in the jazz piano department at the University of Miami from 1970 until 2004. Then in 2010, I was re-hired to develop and teach improvisation to the entire classical instrumental student body. I had been teaching improvisation to classical pianists as far back as the early 1980s at the Aspen Music Festival, showing them how to interpret chord symbols with a voice-led line that had no harmonic errors in it.

Unfortunately for classical musicians, improvisation as a requirement in conservatories stopped around 200 years ago. But composers like Bach, Beethoven, and Mozart all improvised their own music, and in fact those improvisations were often the highlights of their musical gatherings. So now I'm teaching classes in classical improvisation that focus on melodic improvisation, something I always wanted the jazz education industry to pay attention to.

What is most important for pianists to remember when approaching their craft?

Music is built from the melody down. If you follow that rule as a pianist, your music is likely to be balanced. You don't know a song until you can sing it, so you need to be able to accompany yourself singing it. Only then can you make proper decisions about how to frame the melody or how to frame somebody else playing the melody. Remember to always pay attention to piano orchestration and things like register usage, density, and pedaling so that you never crowd the melody. If you're singing a song, I'm not going to play any notes that are within a fifth of your note. I'm going to frame you like a picture. I might play things above or below you, but I'm not going to get in your face with a chord voicing, because accompaniment goes far beyond voicings. Gil Evans didn't write voicings that competed with Miles [Davis]; he *framed* Miles, just like [arranger] Nelson Riddle did with Frank Sinatra.

People relate to melodies and rhythm, way faster than they do harmony. All the complicated reharmonization in the world won't help you keep your audience interested if people stop tapping their feet and have forgotten the melody. Protecting the melody at all costs is job number one. ♫

LISTENING LIST

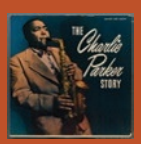
VINCE MAGGIO'S FIVE FAVORITE ARTISTS

For jazz eloquence with an economy of notes: MILES DAVIS

For rhythm and rhythmic interaction: LOUIS ARMSTRONG

For groove and passion: RAY CHARLES

For American song and interpretation: FRANK SINATRA



For Bebop mastery: CHARLIE PARKER

WHAT WOULD VINCE THINK?

Vince Maggio, my piano teacher who strode the halls of the University of Miami School of Music with an intimidating presence that struck fear in the hearts of poor, mediocre, swing-challenged students like me, was and is a one-man beacon of excellence who demanded the same from those under his supervision. He remains my teacher, and whenever I'm working on new music; be it a record of new songs, a film score, or a guest appearance on another artist's record, I always ask myself, "What would Vince think?" He's a true treasure, and I'm grateful to him for his guidance, support, criticism, and encouragement for the last 40 years.

—Bruce Hornsby

Download Vince's arrangement of Noel Coward's "I'll See You Again," and read more artist tributes.

keyboardmag.com/july2015

GREG WATERMANN

BETH HART

GETTING PERSONAL WITH HER AUDIENCE

BY BOB DOERSCHUK

DURING HER TWO SOLD-OUT SHOWS AT NASHVILLE'S 3RD AND LINDSLEY nightclub in March, Beth Hart was a whirlwind onstage, almost too explosive to be confined within the venue's walls. Pain, humor, physical yearning, ecstasy, and a bit of sweetness spilled from her vocals in a passionate tumble.

As Hart started one particular song, eyes closed, she dug deep into her well of heartache to sing, "If I ever leave you, baby …" Then, there was a second of silence silence, her eyes opened, and a sheepish look crossed her face. "Oh, f*ck, I forgot the lyrics," she announced.

Toward the end of the show, obviously supercharged with the night's energy, she counted off a song and then suddenly waved her arms, stopping it. "Wow," she said. "I started that really fast!" Looking apologetically toward her musicians, she goggled as if seeing them for the first time and marveled, "You guys look really handsome!"

This sort of spontaneity is catnip for Hart's fans. In Europe, she draws thousands to major arenas. Plenty of Americans have been following her too, ever since she blew the roof off of *Star Search* as a contestant twenty years ago. Fans celebrated the Beth Hart Band's signature hit "L.A. Song (Out of This Town)" in 2000 and stayed loyal during her dark period of drug addiction and a stretch in prison.

And now Hart is reclaiming the spotlight with a new full-length, *Better Than Home*. Released this past April, the album approximates the variety and honesty of her live sets. Just as important, it interlaces high-impact, soul-drenched band tracks with a few disarmingly intimate pieces, where Hart accompanies herself on piano.

In these moments, Hart reveals that even with her riveting vocals, the piano is just as important a part of her artistry. "It's everything to me," she insists in the 3rd and Lindsley green room, between intense drags on a cigarette—her one remaining indulgence. "The thing is, I'm not really a great pianist at all. But if God said I could either sing or play piano, and which would it be? I would definitely choose the piano."

Her conviction is rooted as much in personal history as musical expression. "The piano represents home to me. It represents a place where I can heal—the sound of it, the feel of it, the way it looks. Honestly, before my family started to go through problems when I was a kid, it was an amazing family, and the piano represents the continuance of that dream."

Hart has often told the story of how her parents noticed her talent when she played Beethoven's Moonlight Sonata for them at age four. "They got excited and immediately put me in piano lessons," she says. "I worked with [a] Mrs. Davis for four years, and then she realized as the material started getting harder that I had never learned to read. I was just listening as she'd play the song and I'd play it back. When that happened, she got very upset and stopped being my teacher. I didn't do any more training after that."

At 15, Hart started playing on demos for a friend and eventually for herself in Hollywood studios. As she began to nurture her own style, she found that two Beth Harts were emerging: roughly speaking, the extroverted frontwoman, and the still extroverted but less mobile performer at the keyboard. As she got deeper into songwriting, she began to see that each song naturally gravitated toward one or the other of these identities as it came together.

One recent piano-based song, "Mama This One's for You," closes *Better Than Home*. "I had been working on another piece the day I wrote this," Hart

recalls. "I was struggling with it, so I went outside to smoke a cigarette. Then I heard the lyric and the melody right away in my head. I had the lyric to the first verse and chorus and the music. So I went into the piano room and called my mom. I started playing her the song before I'd ever rehearsed it. As I kept going into the song, the lyric to the second verse all came out too. It was the weirdest thing. I've had songs come super-fast but never like that one. I really took it as God saying to me, 'You need to call and tell your mother how much you really appreciate her. You're lucky that she's alive so she can know.'"

Are blues-belter Beth and piano balladeer Hart really two sides of one personality? "You're dead on it, man," she replies. "It's funny that you ask about that because I was just talking with my band about it a week-and-a-half ago. When I'm doing rock 'n' roll or a blues song or a soul song, or maybe even a gospel song, I love it. I'm doing some of the stuff that influenced me. But when I do 'Light On' or 'L.A. Song,' that comes closest to who I am. When you hear me sit at the piano by myself and do one of those super-personal, confessional songs, that's where my true voice is." ♫

THE QUEST FOR THE RIGHT STAGE PIANO

Given the piano's significance in Beth Hart's life, it's no surprise that her stage setup centers on only one concern: How can she get as close as possible to the sound and feel of playing an acoustic grand?

Hart's search for her ideal stage piano began 15 years ago with an Oberheim, the model of which she can't quite recall: "The keys weren't weighted at all, so I rarely ever played it," she says.

Her husband Scott Guetzkow shares a few more details: "It was built right into the case," he adds. "You just pull the lid off. We chose that for our 'Screamin' for My Supper' tour (1999). Then we went to a Kurzweil PC88 for a few years."

Once, when the Kurzweil was in the shop, they rented a series of Roland RD-600s to play during a residence at The Mint in L.A. "Every week, I brought it back with two or three keys broken," Guetzkow says. "They were like, 'Who's playing this, some 250-pound guy?' [I'd say,]'No, it's a little girl.' She'd break keys every week. They finally said, 'If you bring one more back with the keys broken, we're not renting to you guys anymore.'"

Luckily, they found an instrument that was durable and musical enough for Hart's needs. "In five years on the Yamaha CP33, she's broken one key," Guetzkow says. "And she pounds really hard. One time a key started sticking. I got a guy who fixes them and he said, 'I can't find anything wrong with this.' He put it back together, tipped it on its side, and a guitar pick came tumbling out! That's pretty much the only problem we've ever had with the Yamaha."

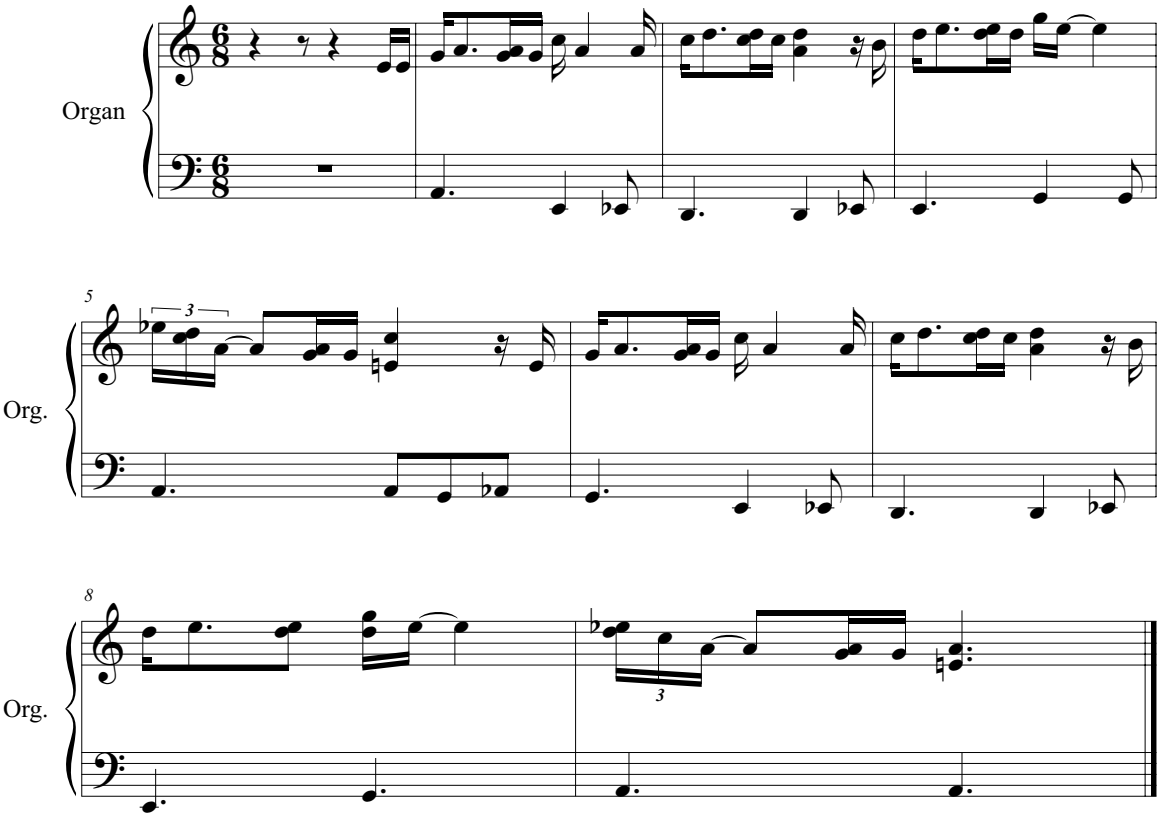
MASTER CLASS

The Gregg Allman Organ Style

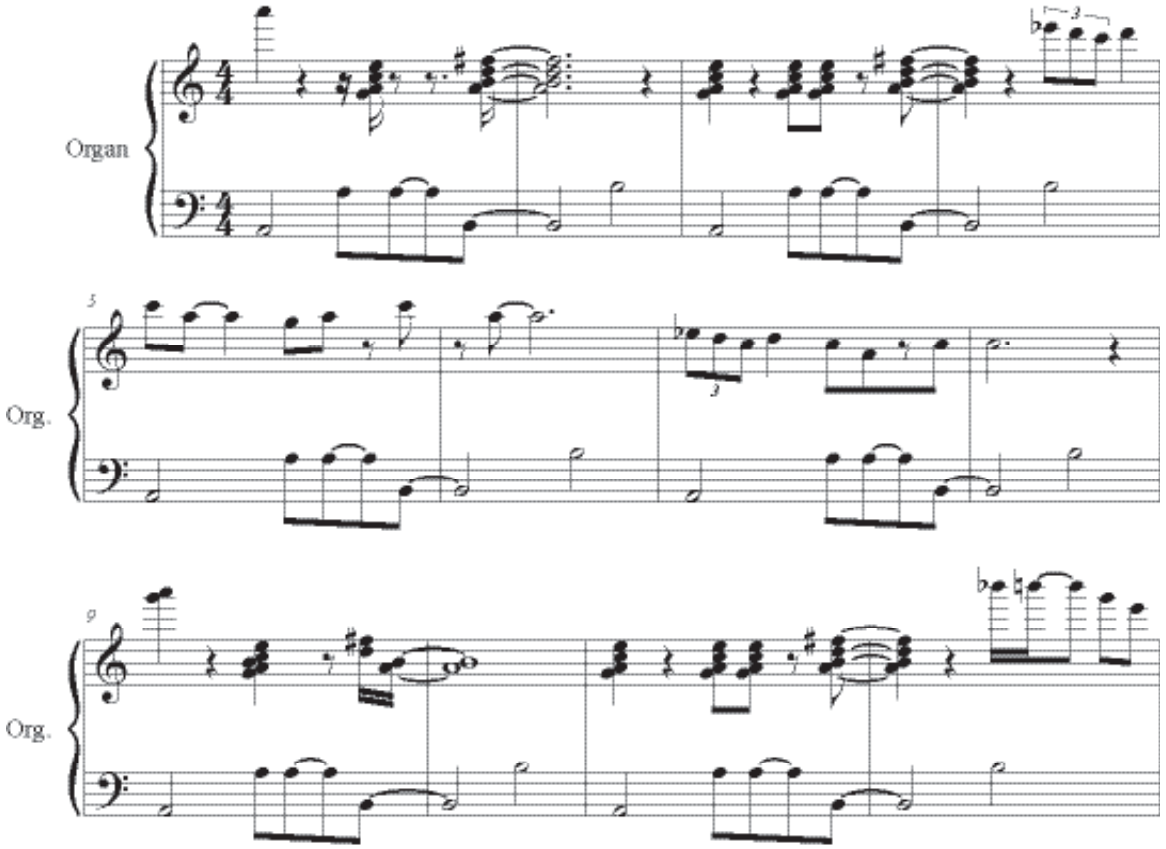
BY JOHN GINTY

GREGG ALLMAN SITTING AT THE HAMMOND B-3 ORGAN IS AN IMAGE THAT WILL stand the test of time, like James Dean on a motorcycle, Elvis in black leather, or Jimi Hendrix lighting a guitar on fire. Gregg put the Hammond B-3 at the very front of southern rock and blues-rock, and made it the altar that all organists pray to.

I had the honor of sitting in with the Allman Brothers in 2011. It's always amazing to meet your heroes, but to interact with them musically is another level. It's a moment in time I will cherish, and I want to thank Gregg for all of his generosity and inspiration over the years. Here are some examples that demonstrate Gregg's singular style on the Hammond organ.

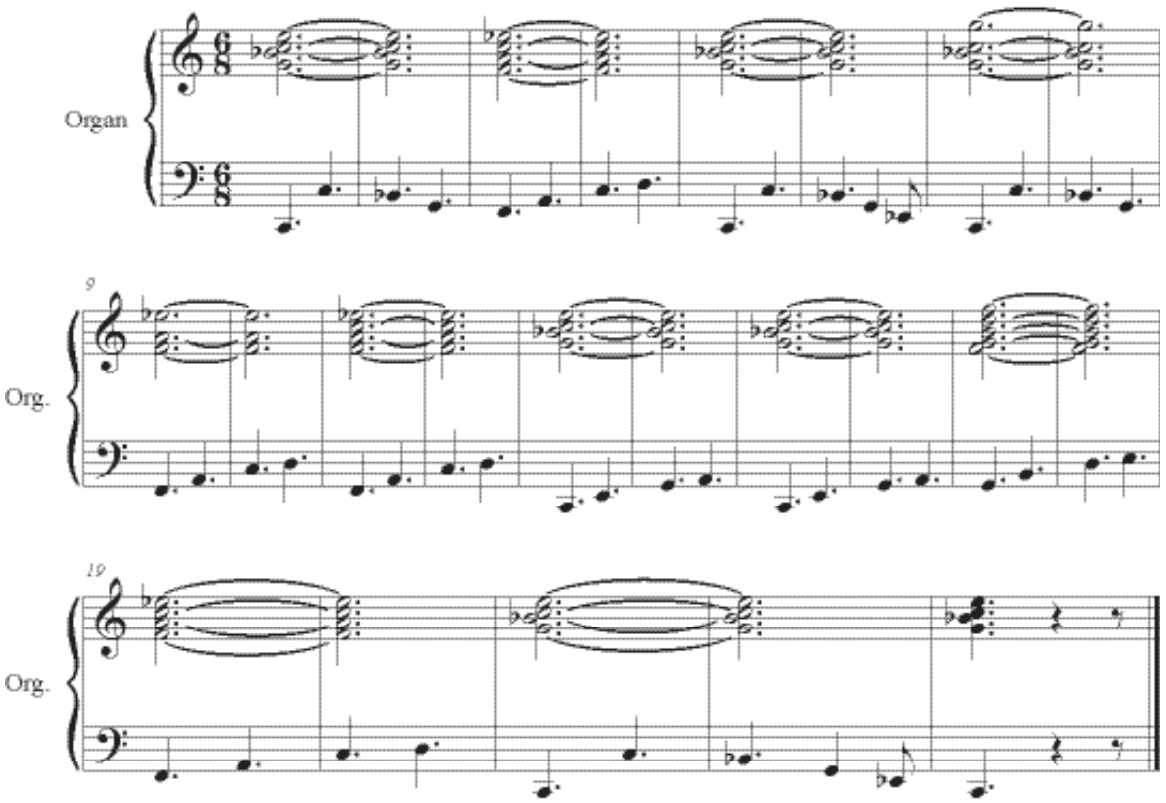
Ex. 1

1. Bouncing the Dominant

Ex. 1 shows how Gregg likes to "bounce" the single-note dominant seventh and flat third through the chord changes. The percussion here is set to loud and third harmonic, chorus is set to C-3, and the drawbar setting is rather dark at 888 4000 00.

Ex. 2

2. Solo Styles

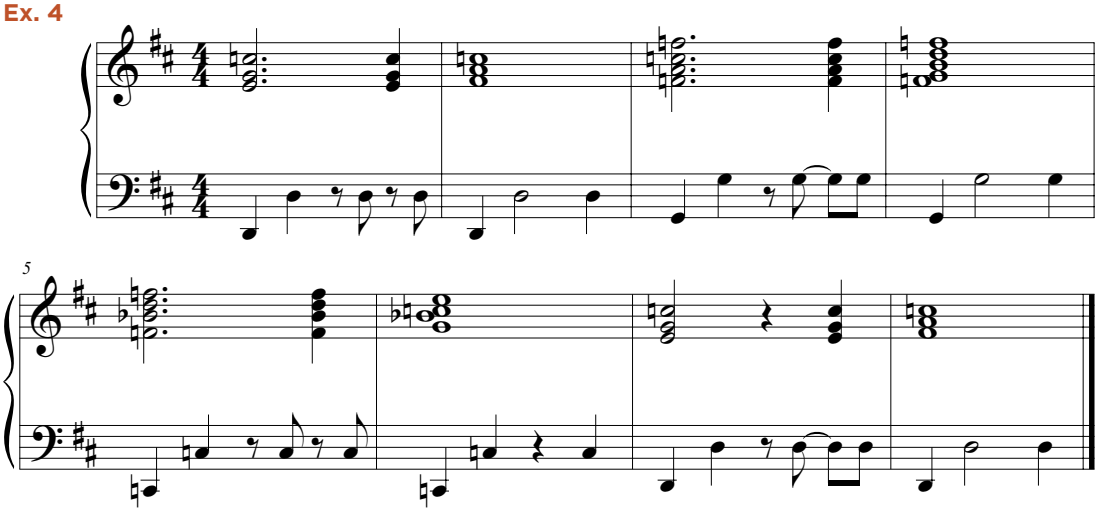
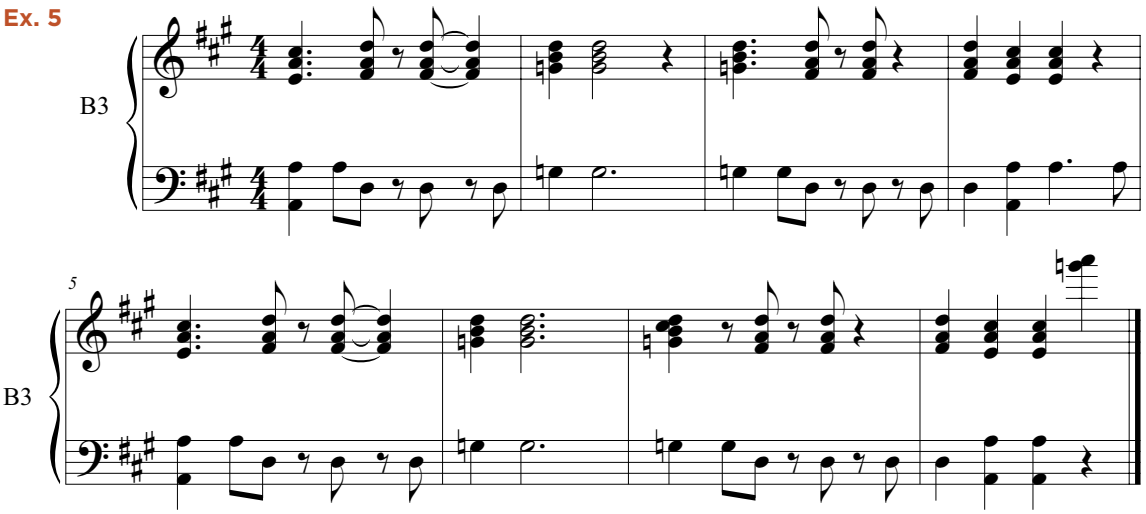
In **Ex. 2**, I demonstrate Gregg's soloing style. Notice how the "finger fall" hooks repeat, and how the solo appears in *A* minor pentatonic, and then in *E* minor pentatonic. There's no flash here, just the hooks.

Ex. 3



3. Preset Magic

Ex. 3 illustrates how Gregg likes to use the *B*♭ preset key to make quick changes. Here, the first few bars are played with a slow Leslie with harmonic percussion, and a mellow tone such as "first three drawbars out." Then switch the Leslie to fast and hit the *B*♭ preset key, which corresponds to a set of drawbars pulled out to almost full (888 7767 88), and you'll effect a quick dramatic change that doesn't require you to re-adjust the drawbars—at least not on a real B-3, C-3, or A100 that has two sets of them per manual. Also be aware that on a traditionally configured organ, the harmonic percussion is active only for the *B* preset key's drawbars, so part of the point of hitting the *B*♭ preset is to go to a fuller registration that doesn't include percussion.

Ex. 4

Ex. 5

4. Percussion and Chorus

Ex. 4 shows you how Gregg likes to use percussion and the C-3 chorus on the upper manual even when just playing pads. He still emphasizes the attack on the downbeat of the chord change, but with all the sonic glue for which his playing is known. Note that polychords ("slash" chords such as *B♭/C*) make regular appearances in Allman's playing.

5. Guitar Doubling

In **Ex. 5**, we see how Gregg will often mimic the rhythm guitar's part, doing so with the percussion tab set to the third harmonic. This extra "ping" adds another element to the overall sound and groove. ♫

"Gregg Allman's understated approach to soloing is something we can all learn from. After just a few listens, you can sing his solos, and you know his hooks as if they were integral parts of each tune," says **John Ginty**, a New Jersey organist who has toured and recorded with Jewel, Santana, and the Dixie Chicks. His 2012 release *Bad News Travels* features performances by Warren Haynes, Neal Casal, and Martie Maguire and spent 17 weeks on the RMR Blues charts. Find out more at johngintymusic.com.

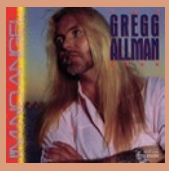
Listening List Essential Gregg Allman

Live at Fillmore East

Laid Back

An Evening with the Allman Brothers Band

Searching for Simplicity



I'm No Angel

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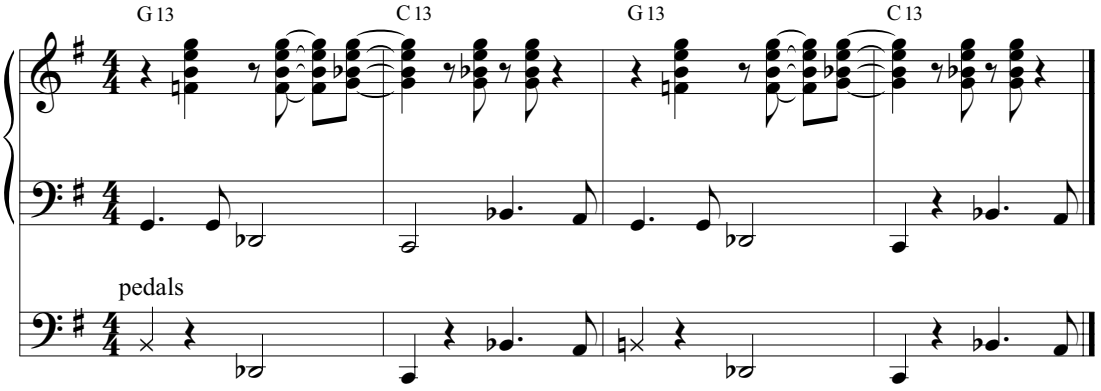
Musician's Friend

5 WAYS TO PLAY LIKE Jimmy McGriff

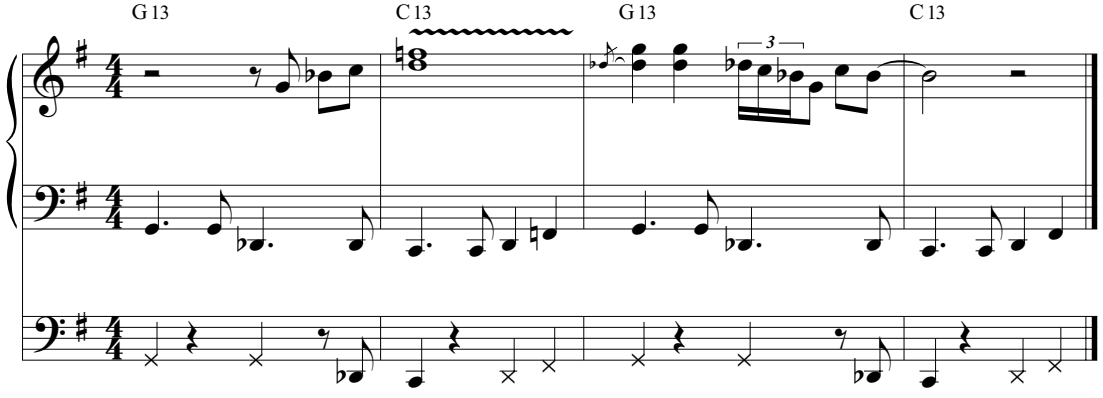
BY BRIAN CHARETTE

YOU MIGHT NOT HAVE GUESSED IT, BUT THE GREAT SOUL AND BLUES ORGANIST JIMMY MCGRIFF STUDIED AT THE FAMED Juilliard School of Music. He also studied privately with many of the great organists like Jimmy Smith, Richard "Groove" Holmes, and even the classical organist Sonny Gatewood. McGriff gets a great, gritty organ sound, especially on the records he made during his funk period. Let's check out Jimmy McGriff's style.

Ex. 1



Ex. 2



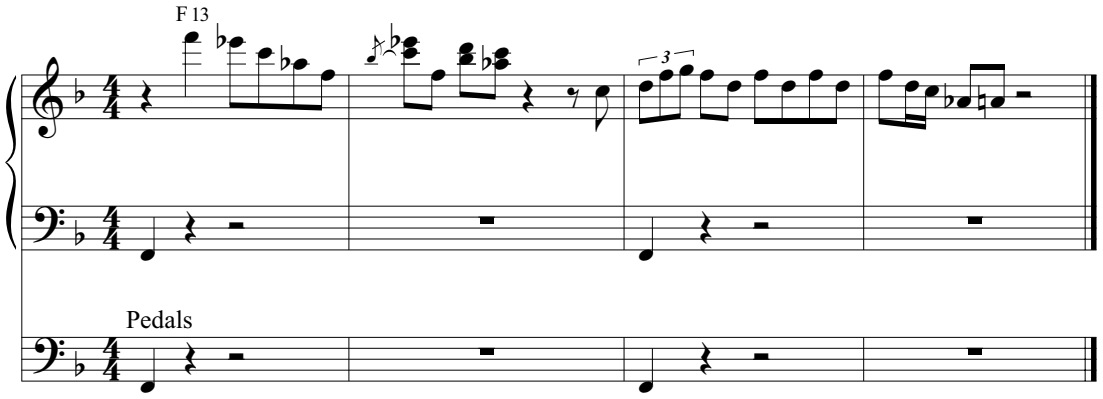
"I sometimes like to pull a few strange drawbars out on a standard organ setting to impart a sound of my own," says keyboardist and composer **Brian Charette**, who has performed and recorded with artists like Joni Mitchell, Michael Bublé, and Rufus Wainwright in addition to leading his own jazz groups. Find out more at briancharette.com.

1. Boogaloo

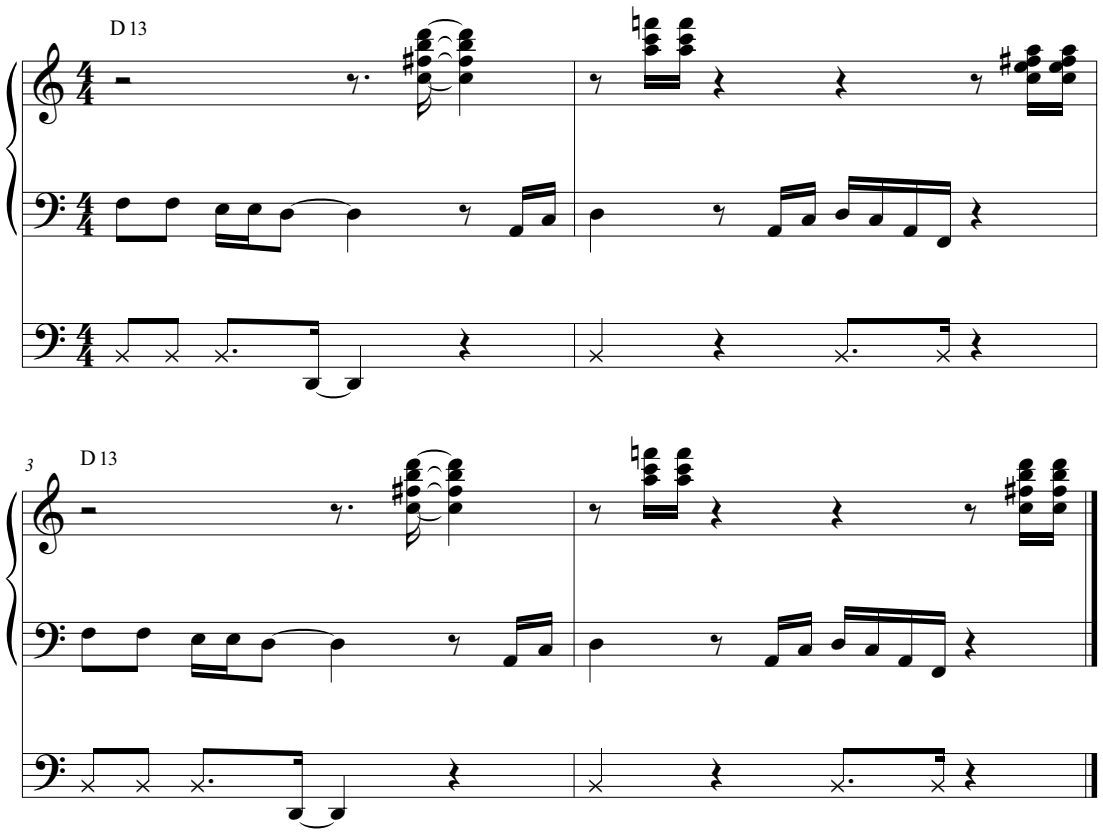
Ex. 1 illustrates a typical McGriff "boogaloo" pattern, inspired by one of his most famous tunes, "The Worm." This is played on the lower manual. Lets use the drawbar setting *80 8000 000* with vibrato/chorus at *C3* and Leslie off, and the first pedal drawbar pulled all the way out. (We'll keep these lower manual settings for all of the examples). Our bass line is shadowed in the pedals, marked with an X on the *B* in the score to notate the default ghost-note position. (If you're using bass pedals, try playing an easy toe-heel movement in the first two bars for both chromatic motions.) Because all the comping in this style of organ playing is done by the right hand, your voicings should be a little wider than typical piano voicings.

2. Blues Riffs

Ex. 2 demonstrates some McGriff-style blues riffs against a solid left-hand groove. I've supplied a slightly varied bass line. On a virtual organ, turn the distortion up. On a real Hammond B-3 or equivalent, just crank up so the tubes get overdriven. The top manual drawbar setting is basically a Jimmy Smith setting; we've pulled out the eighth drawbar just a little for a whistle effect. In bar 2, shake the notes slowly with a loose wrist. In beat 3 of bar 3, notice the triplet-feel lick.

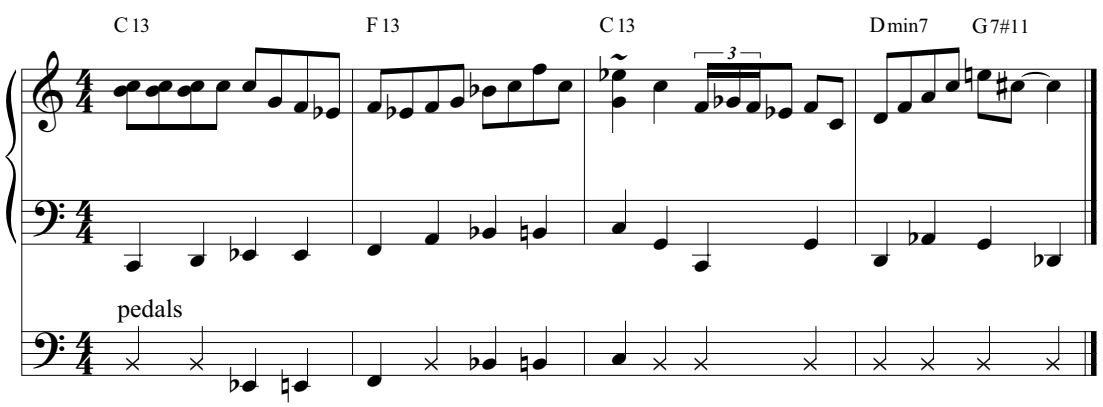
Ex. 3

3. Stop Choruses

Ex. 3 is influenced by McGriff's regular use of *stop choruses*, where the left hand and foot "splash" on beat 1 every two bars. In the right hand, we use the *F* blues scale. In the first two bars, we have a fairly common blues cliché—notice the descending *Fmin7* arpeggio in beat 3 of bar 1. In Bar 3 after our second stop we switch to the *D* blues scale, which lends a decidedly major color to the mix. The line ends with a built-in chromatic embellishment of the major third in the last notes of the phrase.

Ex. 4

4. Funk Grooves

Ex. 4 focuses on sixteenth-notes. We'll use a different drawbar setting. Switch your Leslie to fast, turn the percussion off, and dial up *80 8000 008*. This is often called the "silk" setting. When playing pedals on a funk groove like this, stay loose and try to grab big accents with real bass pedal notes while tapping a light ghost-note on the *B* pedal for the rest of the time. It's important to stay relaxed. If you tighten up, it can cause the time to rush. The silk setting is great for sneaky riffs and subtle colors. Note how in this example, both hands complement each other. When the left hand is busy, the right is relaxed and vice versa. This interplay creates the undulating feel here.

Ex. 5



5. Percussive Plinks

Ex. 5 is inspired by McGriff's work on the song "Splanky," which was Count Basie's nickname used to describe the high, tinkly riffs he often played on the piano. The drawbar setting for the top manual is sometimes referred to as "Vibraphone"; the drawbars are all silent except for the fourth, which is at full volume. The sound is made mostly by the harmonic percussion, which speaks very prominently. Pulling the fourth drawbar all the way out adds a little treble to cut through the powerful bass. ♫

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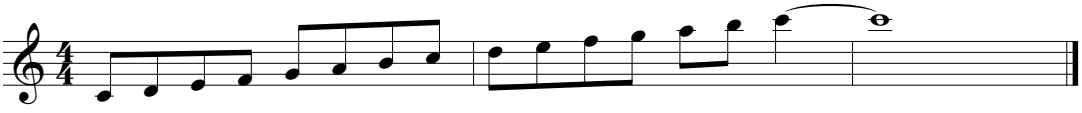
ALEX SOLCA

Sync Those Scales

BY GEORGE WHITTY

DO YOU EVER WONDER WHY SOME SOLOS SOUND LIKE THEY'RE DRIVING DOWN A GREASED RAIL AND OTHERS SEEM never to find their footing? For me, a great illumination in this area came from saxophonist Jerry Bergonzi, who introduced me to the concept of minding which notes of a scale I was putting *on* the beats versus which of them I was putting *between* the beats. The ear perceives notes played on the beat to be the harmony that's being played over, so in order to play a scale most in sync with any given harmony, we need to construct scales so that the notes that are *on* the beat outline the chords we're playing. Let's explore this a little more closely.

1. Out-of-Sync Scales

Ex. 1

Ex. 1 illustrates a standard *C* major scale. Notice that for the first bar we're outlining *Cmaj7* on the beats but for the second we're outlining *Dmin7*. At that point, we're 180 degrees out of sync with the harmony we're playing—we're outlining *Dmin7* with the melody while the chord is playing *Cmaj7*, and our line is suspending over harmony that's resolving. This produces the classic situation where, even if everything else about the line is great, the musician sounds like he or she is "fishing." They're out of what I call the "harmonic pocket" and the line just isn't hooked into the harmony in a way that provides driving propulsion. All the potential harmonic leverage between the tension and release in the harmony is wasted. Play a block *Dmin7* chord over a *Cmaj7* chord and you can hear that it's just kind of a mess—that's what we're getting if our line is outlining the *Dmin7* over the *Cmaj7*. What's the solution? Read on!

Practice Tip

"Once we have our fingers grooving on these eight-note shapes instead of the seven-note shapes we all grew up with, we can devote more of our brain to 'Where do I want this to go,' and a lot less to 'Why doesn't this sound right?'" says **George Whitty**, who has performed with David Sanborn, Herbie Hancock, Carlos Santana, and the Brecker Brothers. His latest release with group Third Rail is *Ignition: Live Across Europe*. For more info, visit gwhitty.com.

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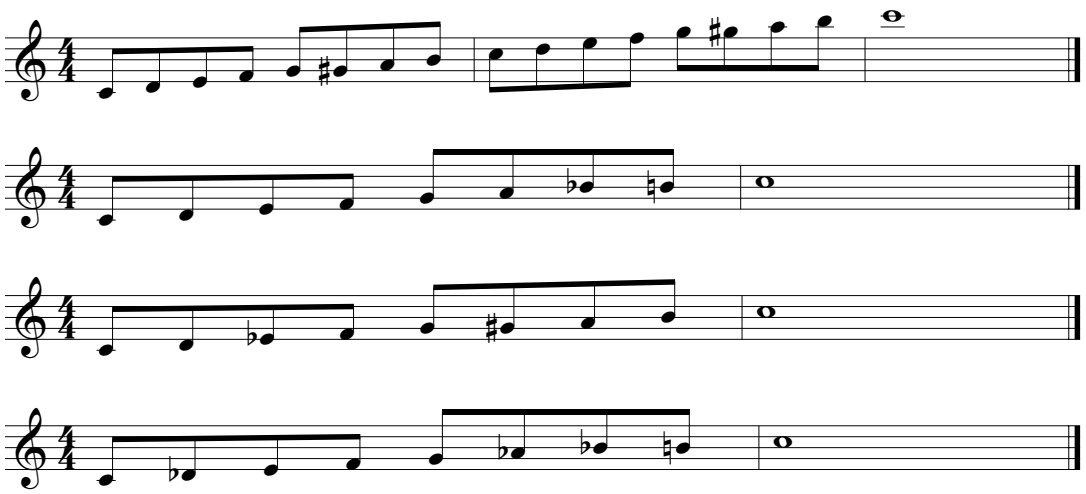
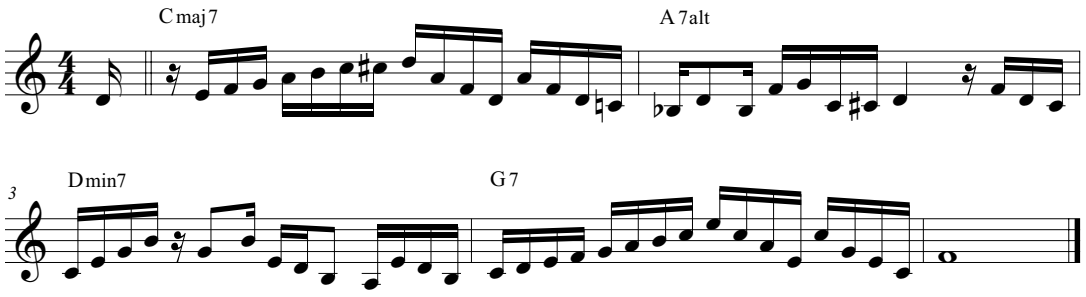
Ex. 2a-2d

2. In Sync Scales

Ex. 2a shows a way to solve our harmonic sync issue. Let's use an eight-note scale, created by adding a *passing tone* between degrees *5* and *6* (*G#* in this case), that will stay in sync, with chord tones on the beat, all the way up and down the keyboard, as long as we start on a chord tone. Take a look at any classic bebop solo and you'll see this passing tone all over the place. (It's in the first bar of the bebop standard "Donna Lee," for example). If you analyze what notes are put on the beat, it's generally either chord tones or likely a great harmonic substitution made absolutely clear and coherent by which notes are chosen to be on the beat. The notes on the beat are what we hear as the harmony in the line. We also get the effect of tension between the beats and resolution to chord tones on the beats. This really helps drive the line. In Boston we called these "bop scales," and there are ones for dominant chords (seen here in **Ex. 2b** with the extra note between degrees *7* and the tonic), and a minor one (seen here in **Ex. 2c** with the passing tone between degrees *5* and *6*, and with a natural 7). Finally, **Ex. 2d** illustrates the bop scale for altered dominant chords, using a flatted second, a raised fifth, a flatted seventh and the passing tone of the natural seventh as well.

Ex. 3

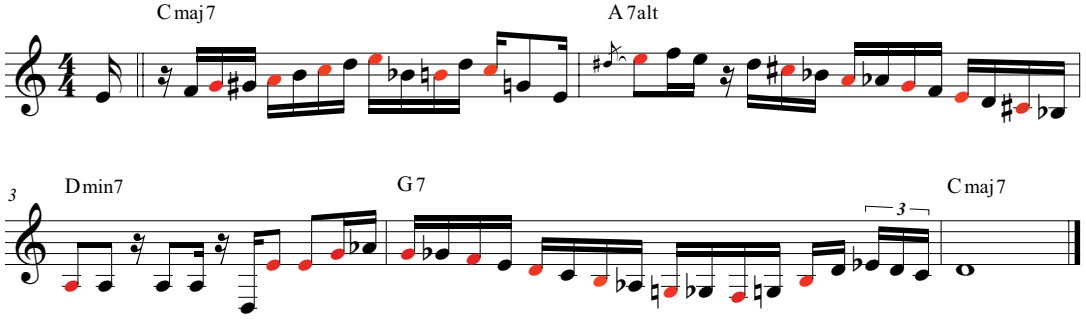


3. Out of Sync Solos

Ex. 3 illustrates an out of sync bebop solo with everything out of the "harmonic pocket."

While some aspects of this line sound fine, everything about the line is completely at odds with the harmony. "But wait," you ask. "If it uses notes from the right scales, what could be so wrong?" The answer lies in which notes of the scale are *on the beat*.

Ex. 4



4. In Sync Solos

Ex. 4 demonstrates a bebop solo with everything in the pocket. Now you can hear that when the harmony is suspending, the line is suspending as well, and when the harmony resolves, the line does also. Ah, much better! Remember, this doesn't mean we're stuck playing chord tones on the beat all the time. The idea here is just to understand the value of minding what you put on the beats and what you put between the beats. In fact, the real fun begins when we start to substitute good extensions onto the harmony and apply the same principles. For example, running an *A♭min* bop scale over a *G7* chord puts the notes of an *A♭min6* chord *on* the beat. Therefore, we hear a really clear representation of our substitution on the *G7*. Again, what's on the beat is what gives things a nice, strong sound. ♫

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The future of the notebook

With the new MacBook, Apple set out to do the impossible: engineer a full-size experience into the lightest and most compact Mac notebook ever. That meant reimagining every element to make it not only lighter and thinner but also better. The result is more than just a new notebook. It's the future of the notebook. Engineered from the ground up for silent, efficient performance, it starts with a fifth-generation Intel Core M processor that runs on just 5 watts of power, made even more efficient by optimizations throughout OS X Yosemite. Together the processor and OS X sip so little energy that the system generates very little heat, so no fan is required to cool the computer. That means when your MacBook is working, you won't hear a thing, except your music.

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THE ART OF SYNTH SOLOING

T Lavitz: An Appreciation

BY JERRY KOVARSKY

THIS MONTH I WILL EXPLORE AND celebrate the sadly departed T Lavitz. T came out of the University of Miami jazz department (we were classmates) and joined jazz-fusion rockers the (Dixie) Dregs, sharing their most successful years as a band. He wore his influences openly; mashing up Jan Hammer, Chuck Leavell, McCoy Tyner, and Chick Corea into an aggressive blend that's missed by so many of his fans and peers. T had a distinctive voice on piano, organ, and lead synth soloing, the latter of which we will explore now.

RANDI ANGLIN

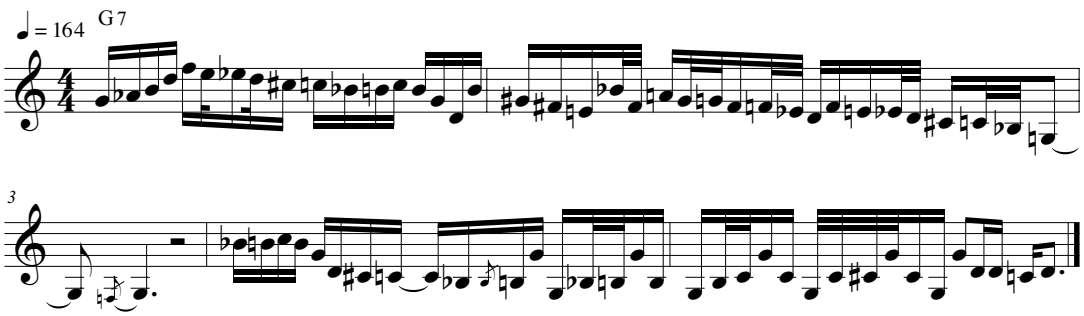
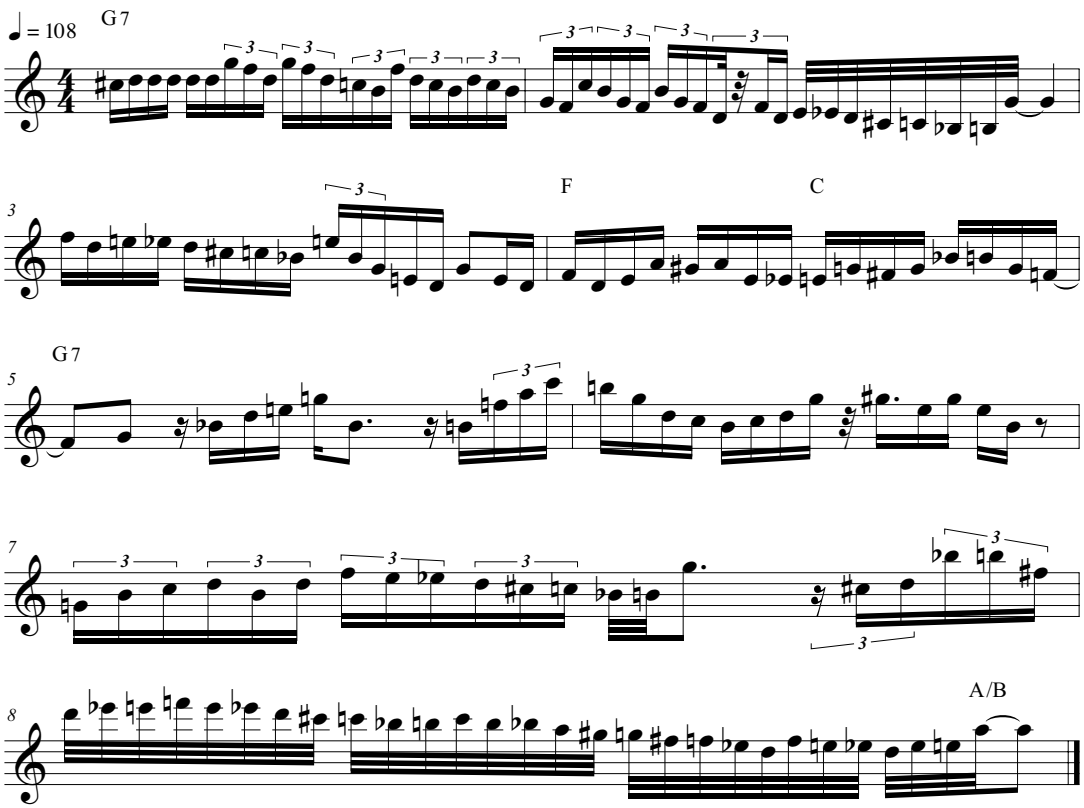
Sounds and Synths

T had no signature lead sound per se. In the early years with the Dregs he often used an Oberheim OB-1 solo synth along with an OBX polysynth, plus a Sequential Prophet-5. His sound was a pretty basic open sawtooth lead or sync lead—standard fare for the times. He can also be heard doing the "soft flute" type of sound that Hammer popularized. He got involved with Ensoniq when the company helped sponsor the band's reunion in 1987, using their SQ-80 and later the SD-1 and TS-10. In the late '90s he started using General-music synths and toured for many years with their S-Series and later the Equinox.

The Mahavishnu Effect

The Dregs had a unique mix of styles, blending the Allman Brothers with the Mahavishnu Orchestra with ease. A common element derived from the M.O. was the trading of short solo lines, often at breakneck tempos. **Ex. 1** shows two phrases in the style of the Dregs classic "Cruise Control," as performed on their 1993 reunion release *Bring 'Em Back Alive*. The first phrase has it all: The opening beat has a Jan Hammer flavor thanks to the A♭, which gives it a slightly Eastern sound. This moves into a common advanced blues lick many players use;

ROBERT J. PENNEYS

T Lavitz's live rig from the feature in our December 1980 issue. Left to right: Oberheim OBX (on loan but not yet a regular part of T's arsenal) atop Rhodes with ProPiano custom EQ, Sequential Prophet-5 atop Yamaha CP-70 electric grand, and Oberheim OB-1 atop Crumar T1 drawbar organ.

Ex. 1. Two of T's traded-four licks in the style of the Dregs' "Cruise Control."

Ex. 2. A Lavitz-like solo inspired by "Free Fall" from *California Screamin'*.

Brian Auger comes to mind. In bar 2, T moves slightly outside the tonality, superimposing *E* major over *G7*, then sliding into some chromaticism before returning to the blues to conclude the phrase. The second phrase is more "inside" and shows his country and blues expertise.

Highly Melodic

T brought a very melodic sensibility to his playing, and **Ex. 2** is one of my favorites, a fiery solo inspired by the tune "Free Fall" from the 1999 *California Screamin'* reunion tour. Bars 1 into 2 employ the "Jan Hammer" scale we've studied and then move into the same advanced blues lick discussed above. Bar 3 rephrases that same lick and then moves into a major blues scale lick, emphasizing the tri-tone interval of *E* and *B♭* (the sixth and flat third of the scale). By bar 5 we're back to major blues, moving into an arpeggiated *Dmin7* to give a jazz flavor followed by a resolution into the *G* triad in bar 6. Then he "takes it out" using his favorite *E* major over *G7* trick—think of it as a major triad or major pentatonic based on the sixth step of the scale/key center. Bar 7 brings it right back to earth with his trademark blues, followed by a blazing descending chromatic run.

Not Forgotten

All players looking to blend rock, jazz and country should study T's work. To help, we'll post a few other synth solos at keyboardmag.com/july2015, and would welcome readers to share their favorite T Lavitz performances at the Keyboard Corner at forums.musicplayer.com. ♫

Arpeggiator Adventures

BY CRAIG ANDERTON

ALTHOUGH SOME CONSIGN ARPEGGIATORS TO THAT SPECIAL PLACE IN HELL reserved for 1980s musical excesses, such as gated reverb and orchestral hit samples, it pays to put your prejudices aside and check out these tips. I refer to some specific audio examples below. You can find a link to those in the usual place at keyboardmag.com/july2015.

Basics. An arpeggiator "reads" the notes you're holding down, then plays them back sequentially at a particular rhythmic value (*e.g.*, eighth- or sixteenth-notes). The note playback order represents a particular arpeggiation mode. For example if you're holding down *G-B-D-F*, an "up" mode would play the notes in that order while a "down" mode would play *F-D-B-G*. There are many other modes, like combining up and down, and the ever-popular random option. Other typical features include Latch (playing continues if you take your fingers off the keys), octave range that can exceed the notes you're physically holding, velocity and swing offsets, and more.

Arpeggiators can be wired into hardware or software synths (Synthix.mp3), or be MIDI plug-ins (see Figure 1).

Instant ambience. Load a sustaining synth patch like a pad, set the release time to five or six seconds, and add several seconds of attack time. Choose a long note value for the arpeggiator rate (say, one measure), set the mode to random, then play a chord. Within a few seconds after the notes build up, you'll hear a complex chord with lots of animation (Ambience.mp3). To turn this into a useful audio clip, I usually render it and then cut off the beginning where the chord builds up.

Fig. 1. Clockwise from top: Arpeggiators in Reason (RPG-8), Xils Lab Synthix, and Ableton Live.

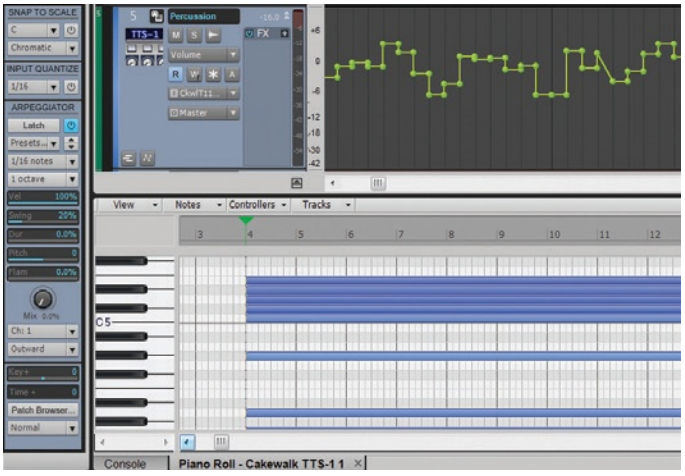


Fig. 2. A random volume automation envelope in Cakewalk Sonar is altering an arpeggiated figure's level during playback.

Sound "clouds." This works with almost any sound. Insert a reverb set to wet sound only after the instrument. Choose a really long delay, no pre-delay, maximum room size, and 100 percent diffusion. (Listen to Clouds.mp3; the clip crossfades into the reverberated version.)

Percussion patterns. Call up a synth program that maps a lot of percussion across the keyboard—most General MIDI patches include suitable sounds once you hit notes above the standard drums. Choose your desired rhythmic interval, and set a one-octave range. Choose notes that correspond to the drum sounds you want to hear, then let 'er rip. Adding a little swing will help loosen up the vibe a bit. This is also where choosing different arpeggiator pattern modes can yield very interesting results.

Add track automation. Random volume automation (see Figure 2) can help introduce more variety (Percussion.mp3). But this doesn't *have* to be random. For example, a ramp that decays over a measure or two adds a different rhythmic element—and introducing some stereo delay can make the sound even more interesting (DelayPercussion.mp3). I'm particularly fond of dotted half-notes in one of the channels. However, I don't recommend inserting the delay in the instrument audio track subject to the volume automation; this will reduce the delayed signal level as well as the percussion. Instead, insert the delay in a bus, and send some of the percussion instrument audio into the bus.

Add arpeggiator automation. Not all arpeggiators have this feature, but it's extremely cool to vary parameters if you can. For example, changing MIDI pitch with the drum examples given above can change the drum sounds that play back. Doing this for a measure as a break prevents monotony from rearing its ugly head. Changing swing, flamming, pattern direction, duration, and so on lets you get a lot of mileage out of a single arpeggiator pattern.

***Dugga-dugga* bass lines.** Holding a single key with the arpeggiator on provides that "repetitive note" effect that lurks in the background of so many dance records. For more variety, add some filter and volume automation (DuggaDugga.mp3). ♫

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Bigger Better Pads

BY FRANCIS PRÈVE

ONE OF THE KEY MUSICAL ELEMENTS IN BOTH ELECTRONIC MUSIC AND SCORING FOR FILM AND TELEVISION IS PADS playing chords or other emotive passages. While many producers go for a filtered sawtooth with maybe a touch of chorusing and reverb, that's pretty old hat. So let's look at five techniques for creating pads that retain the lushness of the classic sound, while adding spaciousness and animation.

Adding Motion

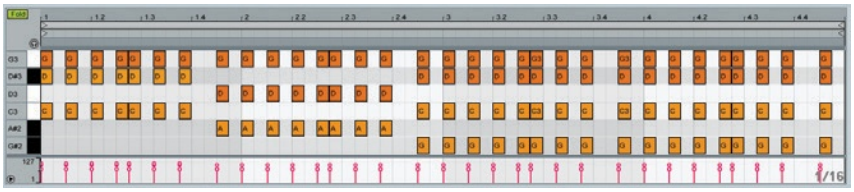
One of the easiest techniques for imparting subtle animation to a soft chord progression is to copy the progression to a new track that contains a synth with a filtered triangle wave with a longer release. Then, add a very slow arpeggiator to that track and mix it under the pads. Instead of using a standard up/down pattern, try setting your arpeggiator to random and using a quarter-note or half-note rate. By doing this, you add motion to the chords without making the arpeggiation too obvious. For bonus points, add a touch of auto-panning to the underlying triangle wave to give the pads a wider stereo field.

2/5 = 1/7

Wide open voicings lend pads an air of orchestral authenticity. If your music theory chops are rusty, there's an easy way to create open voicings: Tune your oscillators to fifths (in Ableton Live add the Chord MIDI device, set to +7 semitones). With these settings in place, all you need is a minor third to create a minor seventh chord, *e.g.*, playing *E♭* on top of *C* will also yield *B♭* and *G*, respectively. Play the tonic in a lower octave and the minor third in an upper octave for instant string-like voicings. Though the old harmony rule that neighboring voicings should never employ parallel fifths doesn't always apply to pop and electronic genres, you can follow it by experimenting with different tunings for subsequent chords.

Reverb Layering

Lush pads often include reverb for spaciousness, but when it's applied to a midrange sawtooth pad, that reverb can often muddy up a mix. Instead, duplicate the pad track and layer a metallic, bell-like texture with a long, fully wet reverb. Then roll off the reverb's lows so that the result creates an airy sheen behind the pad progression.



Subtle Pulse

Another cool trick with the above sine wave pad is to play a subtle rhythm with the supporting chords. To keep things subtle and not veer into chord stabs or comping, stick with a softer envelope and a simple rhythm with just a touch of syncopation. ♫

Warm It Up

Lighter pads often need more midrange depth. Instead of applying EQ—which can be tricky if the original pad doesn't contain a lot of fundamental—try layering the pad with a simple sine wave patch. Start by initializing the second synth's preset to its default, then turn off all but one oscillator and set it to a sine wave. Now open filter cutoff to maximum and create an amp envelope with a soft attack and medium release. By varying the level of the second layered synth, you reinforce the fundamental for your chords without adding EQ. If the sine wave is too dry, add a touch of chorus and/or reverb while you're blending it.

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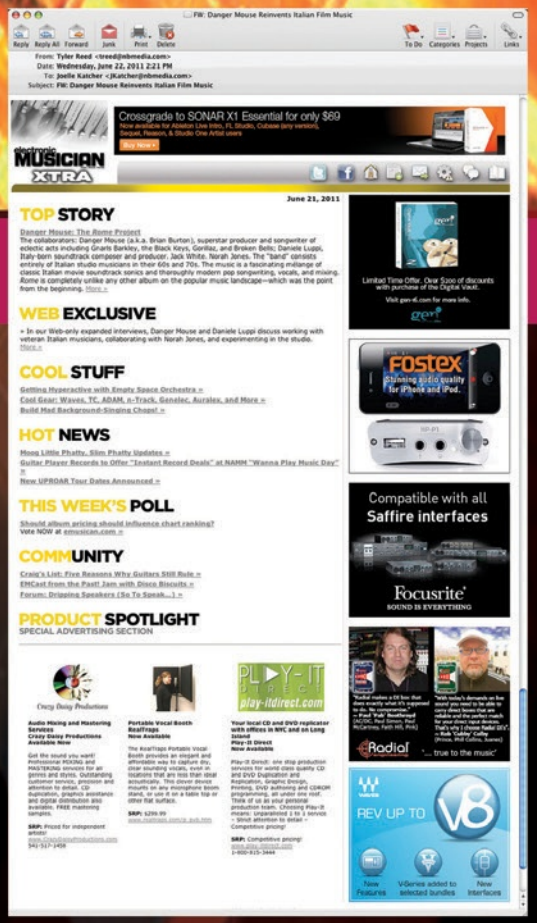

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HYPERSYNTH Xenophone

BY CARLO MEZZANOTTE

WHEN A NEW SYNTHESIZER COMES OUT FROM A COUNTRY THAT WASN'T previously known for making electronic instruments, I'm always curious and excited, and the Hypersynth Xenophone is certainly cause for excitement. Persian developer Hypersynth was previously known for their software instruments and editors, and this monophonic analog synth module is their first hardware offering. As we'll see, it offers a lot of sound-shaping power and a unique sonic character for the price.

Overview

Enclosed in a small, lightweight box with wooden sides (either flat or for a little more money, angled sides that turn the unit into its own desktop stand), the Xenophone is a three-oscillator monophonic synth module with analog oscillators and filters, digital envelopes and LFOs (like many modern analog synths), and digital effects to round off the sonic chain. Editing is based on the interaction of its 26 rotary encoders with the info given by its two-line display. With two sub-oscillators, three LFOs, three envelope generators, three ring modulators, a multimode filter with ten modes, and a vast modulation matrix, there's plenty to keep a dedicated programmer busy. To store your creations, you have 896 memory slots, organized in seven banks of 128 patches each. The manual is well written, and while it assumes a basic knowledge of analog synthesis, it's quite exhaustive.

On the right side of the Xenophone's display, you'll find the only detented encoder (the other 25 are free-running). Its main function is to navigate through the various pages, wherein you can adust the values of two to four parameters per page via the four "soft" encoders beneath the display. However, the most-used parameters also

Snap Judgment

PROS Rich, clear analog sound with a serious personality. Huge set of features with lots of modulation options. Good price/performance ratio.

CONS Third oscillator can't be used at the same time as noise generator. Some aspects of the OS can be confusing. When used, distortion tends to alter overall sound too much, even at low settings.

have dedicated knobs, which you can grab at any time on the various sections of the panel. This causes the screen jump to the appropriate page, though there's a setting if you prefer to prevent that. In addition, a button accesses frequently used categories of parameters directly, as well as a submenu that scrolls through every category.

Something that left me perplexed is that on several pages, the "soft" knobs have no effect on the parameters which also have dedicated knobs on the panel; you have to use their dedicated knobs instead. I'd prefer both options: Soft for when I'm focused on the display, dedicated for live performance. Hypersynth is considering addressing this in a future update.

Oscillators

The Xenophone offers an exceptional choice of possibilities for the oscillator section. Let's start with oscillators 1 and 2, which are nearly identical: In addition to the usual sawtooth, square, and triangle waves, you have combinations of square with sawtooth and with triangle, and also a "stepped" square, which is the combination of two square waves. For each of these waveforms you can set and modulate both the shape (morphing from square to sawtooth or vice-versa, for example) and pulse width. With a midway-morphed waveform, the PWM parameter only affects the square component of the wave, leaving the other intact. You can also set the phase of each oscillator, either forcing them to start at a specific point or letting their phase free-run. This can make a huge difference in the tone when combining two or more oscillators.

Oscillator 2 can be hard-synced to oscsillator 1. Furthermore, you can replace the oscillators with the result of ring-modulating square waves between oscillators 1 and 2. Impressed yet? Want more? Both oscillators 1 and 2 have dedicated sub-oscillators (again, producing square waves), which can be tuned either one or two octaves below, and also can be put into ring modulation with their parent oscillators. Another important parameter is Drift, which varies the oscillators' random detuning and ranges from imperceptible to pretty wild.

There's also FM: The triangle wave of oscillator 2 can modulate oscillator 1 in the audio range. Here, the possibility to disable keyboard tracking for either oscillator comes in really handy for certain types of sounds.

Is a third oscillator necessary when you have all these goodies? Hypersynth seems to think "well, maybe," as they treat it as a afterthought. First, it can only produce a square wave. Second, it shares a VCA with the noise generator, so you can't use both it and noise at the same time This is one of the few shortcomings of this instrument. On the positive side, the noise source provides white, pink or red noise, plus something called C64 (an apparent homage to the Commodore 64 computer's SID audio chip), which sounds like a kind of tuned noise.

Mixer and Filter Section

Xenophone's panel lacks a dedicated mixer section, but couple of pages in the display let you adjust the levels of the main and sub-oscillators. The mixer can be slightly saturated by raising the levels, but be careful not to push to the point of unwanted distortion, as we'll see later. There's also a level control for the ring modulation between oscillators 1 and 2.

Next to this you'll find portamento/glide. It has four modes: Fingered or permanent, constant rate or constant time. I would have liked a bit more resolution for the fastest settings.

Then, feedback does a lot to make the sound bigger and tighter, although it reduces the effect of filter resonance. Even more than for the other levels, you have to be careful with feedback level, as it could induce some clipping.

The Xenophone has a single filter offering a choice of ten different types. Both lowpass and highpass modes have a choice of 12-, 18-, or

24dB-per-octave slopes; plus, you get 12dB or notch and two different combinations of lowpass and highpass in series. Very good.

The Filter FM parameter routes oscillator 1 to audio-rate modulation of the filter, disengaging it from the audio mixer at the same time.

So how do these filters sound? I'd say that they tend to sound a bit "pushed," giving an impression of slight saturation. The difference between the different slopes is very evident to the ear, but the overall personality tends to stay constant. As to the resonance, it's not the kind that thins down the overall timbre as you raise it; on the contrary, it seems to add to the basic filter body, contributing to a generally robust, thick sound.

Envelopes and LFOs

Each of the three envelopes starts with the classic ADSR configuration, with the addition of delay and hold stages. Then you can set response type for the envelope: linear, or three different types of exponential or logarithmic. Next is the Trigger Mode, which is where you decide how your envelope will restart at each key press: from zero, from the current level, or it can simply run until the end of its cycle. The envelopes can loop, too; a very desirable feature. As is often the design choice, envelope 1 is hardwired to amplitude and envelope 2 to filter cutoff, but you can set any other routing you like from the modulation matrix, and envelope 3 can be assigned freely.

Each of the three LFOs has six waveforms: sine, triangle, sawtooth, square, sample-and-hold, and finally sample-and-glide, a very useful function that smooths the transition between consecutive values of sample-and-hold. LFOs 1 and 3 have a separate "Target" section, with a limited number of often-used parameters (different for each LFO) to be used as destinations, without taking up one of the slots in the mod matrix. You can set each LFO to restart its waveform with every key press, only when you play staccato, or to run freely. The LFOs can be synchronized to clock (MIDI or internal), with note values between half- and 32nd-notes.

Modulation Matrix

When I first read that the Xenophone had eight "free" modulation slots with a huge list of sources and destinations, I thought of my Dave Smith Mono Evolver Keyboard, which only has four. So I anticipated going wild with multiple modulations—but then I noticed the Xenophone lacks most of the hard-wired modulations the MEK has. So, even with eight modulation routings, I found myself hitting that ceiling several times. On the other hand, Hypersynth really did its homework with the list of destinations. For example, you can modulate individual envelope segments, which I find extremely useful. You can even modulate the depth of another modulation routing. Yes, the programmer in me cries for more, but realizing that many analog synths—especially at this price—have only a few hardwired modulation routings, I shouldn't be complaining too loudly.

Arpeggiator and Sequencer

The sequencer and arpeggiator are of course close relatives, although only one or the other can be used at any given time. Sequences are saved with patches.

Arpeggios can go up, down, or up/down. Adjustments can be made to tempo, division (from half- to 32nd-notes, including triplets and dotted notes), duration, and range (one to three octaves). Latch lets the arpeggio or sequence run even after the keys have been released.

In the sequencer, notes can be input from either the screen or incoming MIDI data, and pauses can be inserted. Each of the four tracks has 16 steps maximum; track 1 is dedicated to notes, track 2 to velocity values, and tracks 3 and 4 can be assigned to any parameter. Sequences can be gated by MIDI notes or set to run freely. They can be transposed by incoming note numbers, and incoming MIDI velocity values can override the velocity track if desired. There's also a parameter called Hold Step, which disables the gate-off signal for any given note. That's used to make the pitch of one step in the sequence glide to the next, vintage Roland-style; the Portamento knob sets the speed of the glide.

Next up are the Slew Rate parameters on the Velocity and Assignable tracks. The slew rate here works like a lag processor, which according to the manual "limits the rate at which a signal can increase or decrease in value." In other words, it acts as a smoother/compressor of the values stored in a track. Sequencer tracks also appear as sources in the modulation matrix, so one application for smoothing between consecutive steps would be to use the tracks as extra LFOs, driving any parameter you like.

Output and Effects

At the output stage, in addition to Main Volume and Balance there are two different effect sections: Distortion and Digital Effects (DFX). The (analog) Distortion has five possible settings: Off, Light, Dirty, Harsh and Massive. They're perfect for many styles of electronica, but for sounds that require just a slight amount of saturation, overall the Hypersynth's distortion tends to change the timbral character of a sound a bit too much, even at its mildest setting. Lowering the output level of the oscillators didn't really help, so I just had to give up using distortion in some cases.

The Digital Effects are essentially reverb and delay, with different algorithms. They generally sound good and are a nice addition, especially for live playing. They're not very editable, though—for each of the eight algorithms (which include various rooms and halls as well as a ping-pong delay) you can only adjust three parameters. These are generally well chosen, though, and it's

SOFTWARE EDITOR

The Xenophone comes with its dedicated software, which you can download from the company's website. With an instrument that's so totally editable from the front panel and 896 memory slots for patches, I don't use it much. If you're concerned with DAW integration, however, it lets you automate every parameter in the Xenophone engine (both MIDI CCs and NRPNs) from your host software.

The Xenophone has 1/4" balanced stereo outputs and an input to process external audio signals. A single TRS jack carries analog CV/gate in and out signals.

nice to be able to bring a true analog synth to a gig knowing that you won't need extra effect pedals for a little sweetening.

A word of warning: with such a complex signal path, there are several places where poor gain-staging decisions on the user's part can cause unpleasant clipping artifacts, especially if you apply ample doses of feedback, resonance, FM, and/or distortion. The solution is usually to lower the levels in the mixer section.

Conclusions

Some on the Internet have cleverly observed that the Xenophone has a sound reminiscent of vintage Italian synths such as the Elka Synthex or Crumar Spirit. I find this to be true enough, but the Xenophone can also show a darker side of its soul. With its wide choice of waveforms, the robust and beefy filter resonance, and a vast array of modulation routings, it seems well suited to large, generous timbres. Brassy CS-80-like sounds are easy to achieve. In addition, the distortion section, the more complex filter combinations, the ring modulators, and so on seem perfect for programming more "acidic" sounds. Several of the preset patches seem to lean in that very direction, especially when the arpeggiator/sequencer kicks in.

The Xenophone has lots to offer to the synth-obsessed electronic musician. It can sound both vintage and modern, and its architecture allows a great deal of flexibility at a very interesting price. Of course, you have to like its basic sound quality; which, if forced to try and give a short definition, I would call "clear and tight." Then there's the price: It's not be the cheapest monophonic analog synth out there, but it's far closer to that end of the price spectrum than to the expensive end. ♫

Bottom Line

A very strong contender in the crowded "modern mono" market, with a powerful sound and great features at a very attractive price.

Flat sides: $899 direct | Angled sides: $922 direct | Shipping to USA: $85
hypersynth.com

Keyboard K KEYBUY AWARD

MODARTT

Pianoteq 5

BY JERRY KOVARSKY

PIANOTEQ HAS BEEN AROUND SINCE 2006, AND HAS BEEN STEADILY DEVELOPED, refined, and expanded over four major revisions. *Keyboard* last reviewed this all-modeling, no-samples software piano instrument in the December 2012 issue (at version 4), giving it a serious thumbs-up and a Key Buy award. Let's see what Modartt has been up to since then.

The Basics

Pianoteq uses physical modeling to create its sound. No samples are involved, giving it a very small footprint on disk or in RAM. Physical modeling allows the developer (and user) to get into the "virtual DNA" of the instrument, getting precise about aspects that would be difficult or impossible to isolate in a sampled piano. I will admit that before trying Pianoteq I always felt this was a good "story" but that the musical results didn't live up to this promise. Not anymore—color me convinced.

Pianoteq 5 is available in three configurations: A Stage package ($129) that gives the user a choice of two instruments that are non-editable; a Standard version ($319) that allows for sound editing, virtual mic placement, and loading of external impulse reverb files; and a Pro version ($519) that allows note-by-note sound tweaking and support for audio resolution rates up to 192kHz. There is a large library of additional instruments available for purchase (at extra cost) from Modartt's website to expand your collection.

New in Version 5

Modartt states that they spent two years refining their piano model, "refining the attack and soundboard model, adding more clarity and authenticity." The Steinway and Yamaha grands have been rebuilt from the ground up, and the other models (Blüthner, Yamaha U4 upright) have been tweaked. A new model called the K2 has been developed, which is a composite of elements from their various other pianos. This approach is not new; many of the industry's favorite sampled pianos of yore were actually combinations of sections from different brands of pianos. Also offered as an optional instrument pack is the Kremsegg Collection of eight period pianos and pianofortes perfect for 18th- and 19th-century repertoire as well as your own explorations.

The whole virtual microphone section of the package has been revised, with support for directional, cardioid, and figure-8 response patterns, including 15 new mic models.

Sound Opinions

To judge the quality of what Modartt says they

Snap Judgment

PROS Strikingly realistic and nuanced acoustic piano sounds. Wide range of instruments available. Able to sculpt sound with precision sampled pianos don't allow. Light computer load.

CONS User interface controls as are bit small. Rhodes model not as flexible as the acoustic pianos.

Fig. 1. The Rhodes model with effects open.

Fig. 2. The Clavinet model.

did, I was able to load in the version 4 D4 piano to compare it directly to the one in version 5. I immediately heard the claimed improvements. The older piano has a stronger low-midrange aspect that makes it a bit muddy, and the new version has more clarity. I compared a variety of presets, from classic to jazz to blues, and found this sonic upgrade to be present in them all. It is hard to be sure what's producing this change: With the new mic capabilities I considered that perhaps the virtual mics were positioned differently, as the older version does have a bit more of a "room boom" to my ears. But I certainly enjoyed and preferred the newer versions for their clarity, which may well be due to the soundboard revisions in the new model. Best of all, you can load any older or legacy instrument from the Pianoteq website, so you can have it all.

The K2 piano plays wonderfully, I would describe it as a very clear and clean sound, even across its whole range. It's a 6'11" cabinet model, so it is a bit smaller than the 8' 11.75" D4. It provides a wonderful balance between the warm D4 and the much brighter YC5 (I'm not sure if this is modeled after the Yamaha C5 or C7). There are far too many pianos available in the library for me to comment on, but rest assured there's likely a match for every taste, context, and application a player could have. The new mic options are a sonic joy—I found so many great sounds by varying their placement, and was able to rely much less on the reverb when I wanted to get some natural spaciousness in a sound.

Not Just Acoustic Piano

Since I never reviewed the other sounds I'll weigh in quickly on the electro-mechanical pianos. The Rhodes is very nice (see Figure 1), but always sounds a bit "Mk. II" for my tastes. Many of the presets were a bit thick and "attacky" to my ears, but I was able to shape what I wanted by adjusting parameters like hammer noise, tine, and key-off noise. This is a detailed engine capable of good results, but would not be my go-to choice for vintage electric pianos. A phaser effect is included in Pianoteq as of version 5.2, a much-needed part of the Rhodes' sonic vocabulary.

On the contrary, the Wurly was wonderful. I just needed to dial back some of the reverb and I was in reed heaven. The Clavinets were good (see Figure 2), but I was bothered by the always-present key-off noise—sometimes you want it, but too often it was too loud in the mix. I couldn't find a way to reduce it: Under Action there's a key-off noise parameter, and within the Note Editor there's hammer stickiness, but they didn't alleviate it. It wouldn't be noticeable in a track or live so it's a small point. Setting up a wah effect, I wished for the ability to scale the range of the controller. Currently you can only assign a controller to the wah slider and it runs full-range. I'm not a fan of the original Yamaha CP electric grands, but Pianoteq reproduces them spot-on. The vibraphones are wonderful—I might suggest modeling different types and hardnesses of mallets in the future. Other faves included the steel drums, pan drums, and the stellar harpsichords.

Conclusions

As I wrote earlier, I approached Pianoteq as a skeptic and now stand as a true believer. These are wonderful pianos—rich and full of woody character—and are a joy to play. Every nuance of my playing came across, and you can shape the sound in ways never before possible. Version 5 improves on the clarity of all the pianos, and is well worth the upgrade if you own a previous version. If you don't own Pianoteq yet, I strongly suggest you check it out if you use a computer for music-making and are searching for a versatile and great-sounding software piano instrument. ♫

Bottom Line

The industry standard in virtual pianos that don't use samples—and for good reason.

Stage: $129 street | Standard: $319 street | Pro: $519 street
pianoteq.com

CYTOMIC The Drop

Keyboard K KEYBUY AWARD

BY FRANCIS PRÈVE

UNTIL THE DROP ARRIVED, CYTOMIC HAD ONLY RELEASED A SINGLE PLUG-IN, The Glue. This was such an accurate re-creation of the SSL bus compressor that not only did thousands of producers rely on it as a secret weapon, but also Ableton licensed it as a permanent part of Live. So a similar buzz surrounded The Drop: a CPU-friendly plug-in that not only emulates seven of the most famous analog synth filters, but offers modulation tools so deep it's practically a synth in its own right—just run a tone source through it. As an analog junkie, I had to kick its tires really hard. Here's what I discovered.

Architecture

The Drop's overall design is extremely sophisticated, with all controls available from the main window. At the core are two filters—resonant highpass and lowpass, each with drive—with an elaborate array of modulation tools that combine familiarity with uncommon flexibility. In addition to the filters and modulation, there are quite a few amenities that enhance versatility. For example, the filter behavior can be further modified with Shift and Spread knobs, which allow for quickly setting up bandpass/notch configurations and radically adjusting the stereo field, respectively.

In addition, there's a Preamp section that includes a pad, input and output gain, and wet/dry mix for the filter section. This section doesn't directly add overdrive; instead it lets you tailor your gain staging to maximize the performance of the various filters' saturation and overdrive characteristics.

I've used a lot of third-party filters over the years and The Drop's feature set is extraordinary compared to the competition. A visualizer at the center of the interface displays both filter curves and modulation behavior, so if you start with the default and experiment you can both see and hear what's going on with your sound.

Filter Types

Both the highpass and lowpass sections of The Drop can be switched to one of seven circuit designs. Six of these correlate directly to famous synths including the Korg MS-20, Roland SH-101 and SH-2, Moog Prodigy, Roland Jupiter-8 and Juno-6, and even the rare Oxford OSCar. Each model sounds suitably distinct, and as an owner of much of the hardware represented, I

Snap Judgment

PROS Unbelievably accurate analog filter emulations. Powerful and deep modulation tools. LFOs extend into the audio range. Preamp allows precise control of gain staging for optimizing overdrive. Up to 64x oversampling. Great collection of presets.

CONS Some of the deeper features require careful study of the manual.

Bottom Line

Think you don't need a standalone filter plug-in because your soft synths have filters of their own? Think again—The Drop is that good.

$99 street
cytomic.com

GEEKING OUT WITH THE DESIGNER

We asked Andrew Simper, developer of The Drop, what's involved in modeling synth filters at the component level to get such authentic analog character. As you'll see, his explanation didn't spare the details.

"Every major non-linearity of the original circuits is preserved, as are the topological layouts, so each non-linearity applies to the right voltage in the right place in the circuit. Each capacitor also has the correct time-varying behavior. This is why it sounds so good and you can modulate it smoothly at audio rate. To pull this off efficiently, certain optimizations are required, so instead of full component-level models of everything in the circuit, some groups of components are lumped together into more efficient chunks called 'macro models.'

"These macro models still yield very accurate results, but use less CPU. I reverse-engineered the [Roland] IR3109 chip at the transistor level and verified my full model by comparing it to the real thing with an oscilloscope, but I then made a CPU-friendly macro model to approximate the full model. So although the effect of each major non-linear component is modeled, this is not always done at the component level for efficiency reasons. In the end even a 'full transistor model' is actually a kind of macro model, since the model for each transistor could be viewed as a macro model of the underlying physics.

"I also modified the existing circuits to make them more suitable in a plug-in and DAW context, so if you directly compare The Drop with the original synths there'll be differences—the most basic being lack of the amp stages of each synth. The behavior and curve of the resonance knob varies between synths, so I standardized the gains for the sake of consistency when switching filter models. I did go deep in matching each model very closely to the original circuits in tone, spectrum, and waveform before making any modifications, and have posted several YouTube videos showing the results."

You can get to those videos from Cytomic's website, and we'll be embedding them when this review appears online at keyboardmag.com.

can testify that The Drop's models of their filters are astonishingly accurate. It's easy for cynics to doubt Cytomic's claim that The Drop's models are true re-creations of the actual circuits, but I can attest that they have truly raised the bar for virtualization.

The Drop includes independent oversampling for both real time and rendering. So you can set a CPU-friendly 1x or 2x as you work, with up to 64x for rendering your final tracks—while you run errands, because this could take time even on a very fast computer. Cytomic recommends 8x for renders and the results are well worth the wait.

Modulation

The Drop's approach to modulation may appear familiar at first, but after a little digging, even seasoned users may reel at its depth and complexity. There are two LFOs. The first is a stereo sine wave affair that includes a spread control for offsetting the phase of the modulation. It also includes options for triggering and switching between unipolar and bipolar modes. That's pretty standard until you start playing with the Mult knob, which can multiply the LFO rate far into the kHz range—with no aliasing or glitching at all.

The second LFO includes all of the those features, but ups the ante with the addition of Asymmetry and Curve parameters, which allow for the creation of classic waveforms like square and sawtooth, as well as more unusual results like inverse exponential shapes.

The two envelopes are otherwise identical and can serve as classic envelope followers or trigger when the audio crosses a set threshold. Accordingly, the available parameters are attack, hold, and release, along with sensitivity for fine-tuning. Rounding out the modulation section are FM and MIDI tools for adding keyboard tracking, as well as FM effects derived from either the source input or a sidechain.

Conclusions

The Drop is a success on so many levels, it's a little mind-boggling that it's priced under $100. As an emulation of analog filters The Drop is a stunning achievement. It's hard to overstate just how accurate these models really are. That The Drop actually models the circuits down to the transistors means that its sound is 99 percent identical to the real thing—and as someone with a studio full of the real thing, I'm not exaggerating. The Drop is pure magic and I'll be using it daily for the foreseeable future. Get it now. ♫

Keyboard K KEYBUY AWARD

EVENTIDE H9 Max

BY DAVID BRYCE

EVENTIDE HAS REPRESENTED THE PINNACLE OF EFFECTS PROCESSORS TO just about every musician I know for as long as I can remember. They've been in business since the early 1970s, and the sound of their processors has shaped the tone of countless records and live performances, beginning with their groundbreaking harmonizers, transitioning into state-of-the-art reverb and multi-effects units, and most recently bringing their signature sound to software and effects pedals. A while ago, they introduced the H9, which housed algorithms and a "best of" set of programs from their popular TimeFactor, PitchFactor, ModFactor, and Space pedals. Now, they've unveiled the H9 Max, which is jam-packed with every algorithm and preset from all of those pedals, and a bunch more. I can't wait to fire it up.

Overview

Externally, the H9 Max is no different physically from the original H9. The interface is centered around a six-character alphanumeric LED display and a large combo encoder/switch surrounded by a light collar that indicates values and settings. The encoder (which can be toggled between coarse and fine modes) is used to select, load, and name presets; edit parameters and system settings; and it can also act as an expression pedal if you don't have one plugged in . . . but you really want to have an expression pedal plugged in! Menus are navigated using five small buttons labeled Hotknob, X, Y, Z, and Preset. The X, Y and Z buttons each load the most frequently used parameters of a preset into the encoder for quick real-time adjustment. Each of these buttons can be set to Normal mode (only one preselected parameter), or an Expert mode that lets you step through all of a preset's parameters by repeatedly pushing that button.

The Hotknob button provides access to any customizable combination of the parameters, and the Preset button does exactly what you'd expect: it lets you select and manage presets. Four LEDs to the right of the display indicate signal status (present and peak), as well as Bluetooth status (On and paired). The left footswitch bypasses/engages the unit and loads presets, while the right footswitch is used to tap tempo, increment

Snap Judgment

PROS Killer presets. Stellar sonics. Elegant interface. Deep control via desktop or iOS app.

CONS Display can be a bit cryptic.

The H9 Max's back panel has the expected complement of two mono inputs and outputs. A fifth jack (TRS) is used to connect the an expression pedal, or can also be configured to accommodate up to three independent momentary switches instead. A mini-B type USB input can be used to communicate with a PC, and a small socket is for the external power adaptor. MIDI In and Out/Thru jacks are located on the left side of the unit for program select, program load/dump, and MIDI clock sync.

presets, or toggle between modes. Stepping on both switches simultaneously engages the unit's built-in tuner.

Lifting the Lid

The H9 Max is capable of so many things, I'm not even sure where to start. Obviously, any time-, modulation-, or filter-based effects you can think of are in there; a whole slew of reverbs include halls, rooms, plates, and even springs. A seemingly endless assortment of delays includes vintage bucket-brigade, tape echo, multi-tap, ping-pong, and the deeply trippy UltraTap algorithm (which can do up to 64 taps). Choruses, flangers, phasers, rotary, vibrato and tremolo effects, envelope filters, ring modulators, touch wahs—all present and accounted for.

On top of that, add Eventide's world-famous Harmonizer algorithms that deliver all manner of pitch shifting and harmonies (up to four voices), classic Eventide model H910/H949 emulations, octave-dividing, dual 16-step arpeggiators, a really cool function called PitchFlex that lets you pitch-bend the sound being processed (*man*, that's fun with a Hammond or a Rhodes!), the ethereal Crystals effect, and a nasty little feature called Synthonizer that can track a tone and generate either an additive or subtractive synth tone.

But wait, there's more! The Resonator algorithm adds motion and depth using four staggered resonant comb filters that can be set to ring out based on specific harmonic content. A compressor and EQ are available for leveling dynamics and sculpting tone. There's even a Looper function that allows instantly captured audio loops to be heavily manipulated and mangled in real time. About the only thing the H9 Max can't do is cook dinner, but that's okay, as you'll be having so much fun exploring it that you'll forget to eat.

In Use

I tried the H9 Max with a bunch of keyboard sounds—acoustic, electric and synthesized—as well as plugging one of my guitars and one of my basses into it (with the addition of a distortion pedal). I ran it both directly inline and patched in to in the effects buss of one of my keyboard submixers (engaging the H9's "Kill Dry" parameter to get a 100-percent wet signal). While it seems pretty clear that the majority of sounds in the unit were programmed with and for stringed instruments, most of them work really well with keyboards, especially electromechanical sounds like organ, Rhodes, Wurly, and Clav. Synth sounds, especially those with a percussive attack, also take on a new dimension when pumped through the H9 Max.

Almost all the testing I did was in the studio. As a keyboard guy, almost all my live boards have effects programmed in that would have taken too much time to duplicate on the H9; but, when I plugged one of those boards into it in the studio and turned off the internal effects so I could hear it through the H9, I enjoyed it so much that I found myself wondering how long it would take me to reprogram all that stuff to replace my onboard effects. It even looks really cool sitting on the end of my keyboard.

I also brought it with me to a live jam, and at least two different grooves were started as a result of presets I called up on the H9. I have very little doubt that both the bass player and guitar player who were there that day are going to be adding one to their collections.

As mentioned earlier in the review, the use of an expression pedal is recommended with the H9 Max. Pretty much every program I dialed up had something interesting going on that you could control from a pedal, from obvious things like wah and filter sweeps to real-time control of pitch-shifting, increasing delays, fattening mod effects . . . you get the idea.

UNDER THE HOOD

Looking to customize any of the H9 Max's presets, or roll your own? Download the free H9 Control software, which provides editing at the deepest level, program selection menus, librarian functions, and more. H9 Control can be run on any Mac or PC, and is also available as an iOS app.

Conclusions

If there's a single stand-alone effects pedal on the planet with more capabilities than H9 Max, I have yet to find it. It's easy enough to be used quickly and creatively by any beginner or intermediate player, while the deep feature set combined with the imaginative, interesting, and useful set of presets will certainly intrigue and inspire even the most serious tweaker. The flexibility and power of the H9 Max are formidable (especially when fully unlocked and presented graphically via the H9 Control app), and the high quality of its sonics make it worthy of use in the studio, not just for live applications. We happily award the H9 Max a Key Buy. ♫

Bottom Line

An amazingly powerful, fabulous sounding multi-effects pedal loaded with a ton of creative presets.

$799 list | $699 street
eventide.com

Snap Judgment

PROS Ten unique drum models, each with its own custom parameters. Intuitive X0X-style grid programming. Song arranging tools include custom mixes for each pattern. Lots of integrated effects.

CONS Pop and dance producers will have to create their own patterns, as factory presets and demo sequences lean heavily toward experimental genres.

Bottom Line

An extremely flexible beatbox app with tons of character.

$9.99
mominstruments.com

MOMINSTRUMENTS

Elastic Drums

BY FRANCIS PRÈVE

DRUM MACHINES FOR IOS ARE SO PLENTIFUL THAT IT'S EASY TO BECOME cynical and overlook some true gems. We've reviewed everything from ReBirth to MPC Pro, so we could just kick back and say, "It's all been done." Fortunately for iPad-based producers, that's not the case thanks to new apps like Elastic Drums.

The majority of iOS drum machines are sample-based, which is the main reason that Elastic Drums stands apart. Each of its drums is generated via one of ten distinct synthesis techniques. For example, the kick drum generator includes parameters for the main tone and a second pitch-swept tone for adding impact to the attack, plus a "square" parameter that adds waveshaping, overdrive, lowpass filter, a noise transient, and a few other options.

Then there are models for snare, hi-hat/cymbals, tom, and clap. While the main models are extremely impressive, the claps are a real standout here, with tools that deliver everything from TR-808-style claps to noise bursts.

In addition to classic drums, five synths rely on more exotic approaches to electronic percussion, including two types of FM, a pitch-swept square, a "grain" model that manipulates a swarm of clicks, and a "wobble" synth that's great for dubstep bass lines. These additional synths are fantastic resources for extreme sound design, going far beyond what we usually expect from percussion apps.

Elastic Drums' synth engines alone are worth the $10 price of admission, so the inclusion of a deep and capable sequencer really kicks things up a notch. At first glance, the sequencing tools look like classic Roland fare, but dig a little deeper and you'll find that the velocity for each drum event can be modified by dragging around inside each step block. You can record automation for every available synth parameter by toggling a switch and adjusting the relevant knobs. While there's no way to edit the automation after you record it, it's extremely easy to overdub new sweeps until everything is just right. Once you have a few patterns that hit the spot, you can switch to the "Arrange Pattern" mode, assign the patterns to one of 20 slots, and either perform them on the fly or chain them into a longer sequence.

Elastic Drums includes additional effects that you can apply to your drums, with options that go far beyond the usual chorus-delay-reverb fare. I'll be candid here, the effects aren't as immediately intuitive as the synthesis and sequencing, but after spending a few minutes with the manual, the essentials become obvious. Basically, there are four effects sends for each of the six drum channels. Each of these sends can have its own processor—with options that include basic delays and reverbs, along with some really original algorithms optimized for experimental electronic music. Once you've assigned your percussion to the desired sends, you then switch to the effects window for Kaoss-style control of the four effects.

After spending a weekend with Elastic Drums, I was thoroughly impressed with its features, both as a drum machine and as a resource for creating experimental audio soundscapes. Sure, you can make dance grooves with it, but that's barely scratching the surface. It's an extremely worthwhile addition to any iPad-based production rig.

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5 THINGS I'VE LEARNED ABOUT Being a Musical Director

BY DAVID COOK

DEPENDING ON THE SITUATION, A MUSICAL DIRECTOR'S JOB CAN ENCOMPASS a multitude of roles. On any given day, the work might resemble a producer's (involving musical creation, mixing, arranging, and even soloing), or that of a baseball umpire, where maintaining order is job number one. Great MD's like Cheche Alara, Kevin Antunes, Adam Blackstone, Henry Hey, Greg Phillinganes, and others excel in both of these roles and more. Here are some tips for succeeding as an MD that I've picked up along the way.

1. Learn Every Part

As the live equivalent of a producer, it's your job to make sure all of the individual elements work together, whether you're reproducing the sound from a record or re-orchestrating it for a live version. Learn your part quickly so you can immediately be listening to everything else. Even if all the musicians are playing everything perfectly, chances are improvements can still be made to create a more cohesive band sound. It's a good idea to check out board mixes whenever possible to make sure that everything sounds the way you think it should.

2. Know All of the Gear

Everyone in your band is dealing with some sort of technology, from tuning drums to organizing a pedalboard to editing in Pro Tools. The more you know about everyone's rig, the more specific you can be about their contributions to the music. Don't just say, "I want that guitar part to be *bigger*." Be able to be specific about the type of distortion, length of delay, or amp modeling you want to hear. Talking to the band about their gear on their level will make everything run more smoothly.

3. Remember the Ratio

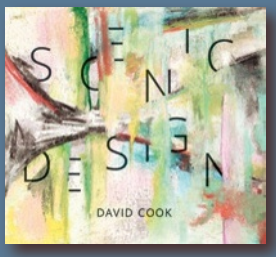
There are three parts to an MD's job: working with the band, working with the artist, and working with the rest of the team. If any one element gets out of balance, that will affect everything else. So, try to maintain a "big picture" view of every situation.

4. Stay Creative

At any moment, you might be asked to write something, change the arrangement of a tune, or come up with a big intro or ending at the drop of a hat. Don't allow anything to interfere with the headspace you need. I find that it always helps to sit at a piano to come up with ideas, rather than working with headphones or on a keyboard in a hotel. So I always try to find a practice room at a local college, or a piano store with a rehearsal space. That extra effort pays off every time.

5. Music Matters Most

Just take care of the music. That's it. Whether you're rehearsing in your apartment with your friends, playing at a jazz club in front of 50 people, or performing in front of 50,000 screaming fans, if you put 100 percent of your energy into the music, you'll never regret it.



New York City-based keyboardist **David Cook** has served as musical director for Taylor Swift, David Guetta, Natasha Bedingfield, and many other artists. His new album *Scenic Design* is out now. Find out more at davidcookmusic.com.

Cook demonstrates piano accompaniment for vocals.

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